APR. 3 1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

Tanker unions attack depletion 16
USSR's oil emphasis will grow 18
Red line: U.S. firms back Nasser ... 21
Exploratory slim holes pay off 29
Chemical hikes waterflood yield ... 33
Hydrogasification for tar sands? ... 41

Pipeline automation coming to help keep oil economical 44

Venezuela group to 'woo' Arabs ... 58
Tanker-building will remain low 62
'Gas' pump sales turn down 70

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Rarely, if ever, does any hose face tougher working conditions than those in this Texas oil-field maintenance shop: Installed on a steam cleaner, it's often in use 24 hours a day, 7 days a week. It's under incessant attack from oil and grease. It's constantly dragged over heavy, sharp-edged machinery –even run over by trucks. So it's little wonder hose-life was as little as two weeks – never more than three months.

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INSIDE *Slant*

PRODUCE LESS—AND SELL IT

Testimony at the recent statewide hearing of the Texas Railroad Commission reflected a definite improvement in the crude situation.

Officials of various regional associations and some independents testified that the tight-rein policy of the commission had resulted in markets for their oil.

The independents said they preferred to produce less oil and have markets for it than to have high allowables and distress marketing conditions.

All were agreed that the 11-day allowable order for April would further help to stabilize the situation.

They feared that a higher allowable would mean a return to purchaser proration, with which they were plagued during most of 1958.

This situation still exists in some isolated areas, but generally the situation is vastly improved.

Jake L. Hamon, of Dallas, told the commission he hoped again to see the day when pipeline companies would knock on his door, seeking connections.

As things now stand, said Hamon, we have to seek purchasers of crude and then truck the oil to them.

LeRoy Menzing
EDITOR

If you want the latest features

There is plenty out of the ordinary about this 368,000 gallon capacity pressure tank barge. Its piping system incorporates a hydraulic actuated fail-safe system whereby any breakage of the cargo hose during loading or unloading automatically secures the tanks. Also — a new type of liquid indicator level system *never used before*, a direct reading magnetic type instrument reading in feet and inches, was approved by the U. S. Coast Guard for installation in this barge. Avondale built it — in 60 days from date of keel laying.

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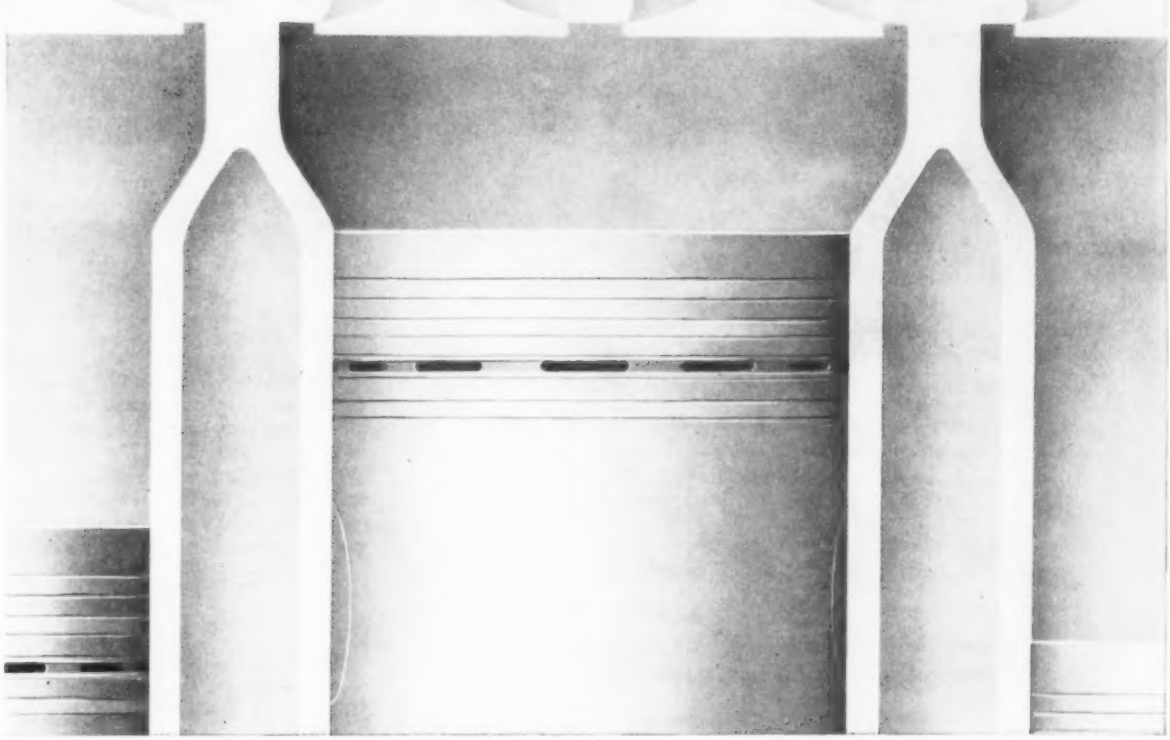

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Ordinary lubricating oils take a beating in big, hard-working heavy-duty engines. High temperature, open-throttle operation causes hard varnish formations and oxidation breakdown. Low-temperature, short-period use causes wet sludge and deposits. Oils blended with *Paranox*® stay *clean* and *lubricate* at *all* temperatures for better performance and longer periods between overhauls.

Enjay has developed the *only complete line* of high quality additives (Paramins®). To meet the most exacting lubrication specifications, insist on Enjay Paramins.

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Since the petroleum industry made its lusty entrance with the Drake well a century ago . . some remarkable records of achievement have been chalked up by oil and gas men.

Lone Star Steel represents one of the great forward steps, and a real convenience for Joe Roughneck . . because Lone Star fine API pipe is made and delivered daily in the heart of the oil country.

Lone Star is a round-the-clock quality operation. You can depend upon Lone Star API casing, tubing and line pipe.

Neighbor, wherever you are, specify Lone Star and we both get a good deal.

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DEPT/Opinions

Views That

"The [domestic oil] industry is not suffering so much from overproduction as it is from overdrilling."

—JOHN MITCHELL
Independent producer
Houston, Tex.

"The relatively small increase in the price of gasoline now urgently needed to restore oil company operations to a reasonable level of profitability would by no means spell new high prices for that product, but would tend rather to restore a realistic price level in relation to the industry's ever-mounting costs and expenses."

—P. C. SPENCER
Chairman of the Board
Sinclair Oil Corp.

"The oil and gas industry . . . cannot absorb further increases in taxes without seriously impairing its ability to stay in business, to say nothing of creating new sources of employment, income, and taxation."

—K. S. ADAMS
Chairman of the Board
Phillips Petroleum Co.

"Experience with new recovery techniques may convincingly demonstrate that wider [well] spacing than presently practiced can be followed with greater rather than reduced ultimate recovery, thereby offsetting the present trend of rapidly rising development costs."

—W. J. MURRAY, JR.
Texas Railroad Commissioner

"It's [public] ignorance that's caused most of your [oil industry's] troubles. . . Give the oil man a favorable political and economic climate and he'll get the job done. . ."

—ARTHUR A. SMITH
Vice-president
First National Bank in Dallas

. . . and Letters

Dear Sir:

The public, as well as members of the oil industry, are rightfully confused about the percentage depletion provisions, due to the arguments over the details of same—27.5%,

Make News . . .

limited to 50% of net—recovering more than cost—goes on forever—does not apply to refining, etc.

Why not explain it by what it does and not how it does it. Similar to the following:

Percentage depletion as it pertains to the oil and gas industry is that magic provision of the Federal Income Tax laws which persuades persons who should know better to invest and re-invest their money in a high-risk and highly competitive business which:

(1) Has an annual tax bill equivalent to 7% of all taxes collected by all levels of government (federal, state, and local) and equivalent to 76% of the value of all crude oil produced and imported in this country. (1957 figures, from Tax Economics Bulletin.)

(2) Spends more money for finding, developing, and producing oil and gas than the value of all products produced. (1955 figures, from U. S. Bureau of Mines.)

(3) Enables those lucky ones, considered successful, to realize as a group less return on their investment than manufacturers earn. (1938-55 figures, from First National City Bank of New York.)

(4) Provides the country with an abundant supply, easily accessible to all, of essential products at prices very little higher, if any, than prevailed 30 years ago. (From anyone who has been around 30 years.)

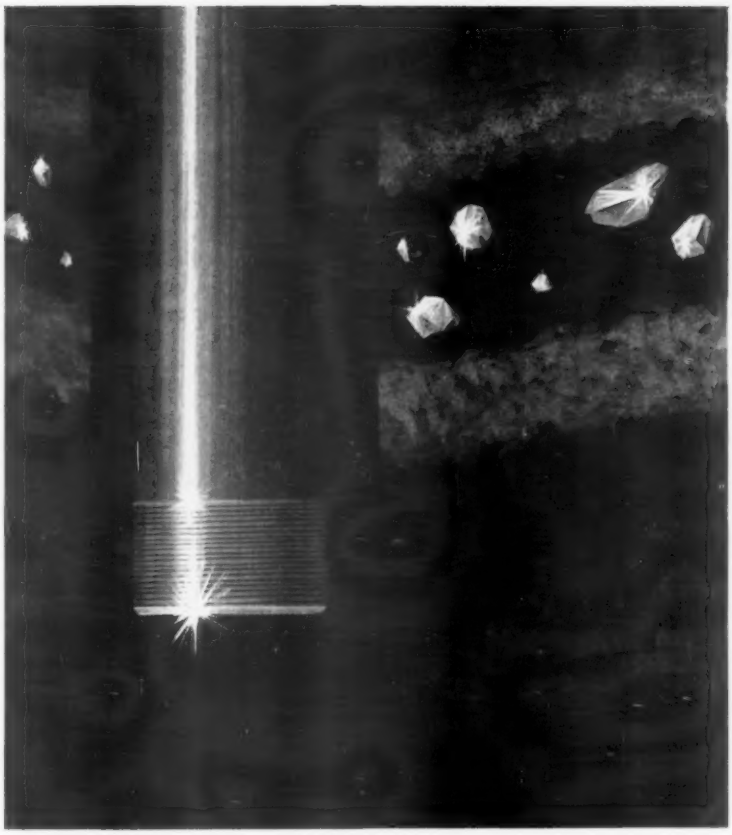
In view of these results, it would appear that, for the continued good of the country, the percentage depletion provisions of the Federal Income Tax laws, as applicable to the oil and gas industry, should not be reduced or cancelled, but increased and offered to any essential industry that will commit itself to operate under the same conditions.

DON DANIELS
New Orleans, La.

P.S. You have a good magazine.

PETROLEUM WEEK *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing, Editor, PETROLEUM WEEK, *330 W. 42nd St., New York 36, N.Y.*



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To business, industry, the nation's defense and people in general . . oil and gas are more precious than diamonds.

The strong demand for petroleum products means a strong demand for casing, tubing and line pipe . . fine, skillfully crafted pipe as produced by Lone Star Steel. Lone Star pipe is a true quality product . . precision made to high API specifications.

Certainly . . the gem of the oil and gas industry.

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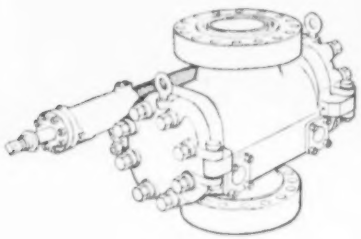
QUICK CONTROL

When a blowout threatens, there is no substitute for fast, positive control. Everything else is unimportant when you count on your preventers to close. This is why so many successful drillers COUNT ON CAMERON.

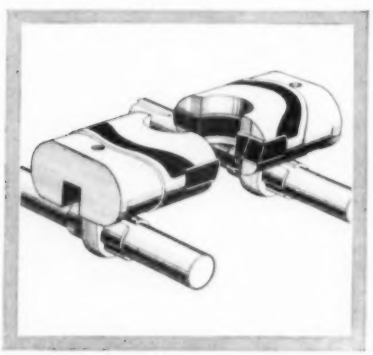
Our Type "F" Preventer is the result of continuous research and development since 1922, when we introduced the first successful preventer to the drilling industry. The Type "F" controls well pressure without fighting it. A large part of the required operating pressure in conventional preventers is used to overcome well pressure. But in the advanced Type "F" design, the actuating mechanism is always balanced to pressure. The only forces required to close or open the preventer under any condition are those necessary to overcome shaft packing and ram friction. This means the closing (and opening) pressure is always low.

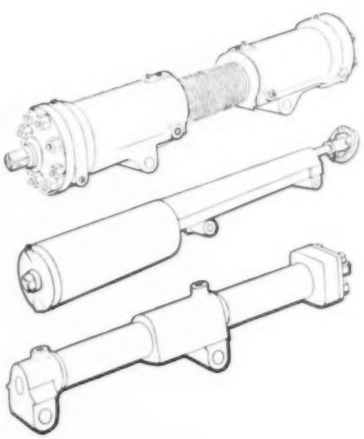


● Arms and rollers operate in Tee slots to close and open rams. Design geometry produces fast movement until rams engage pipe (or each other in blind application), at which point movement speed is reduced and sealing pressure is tremendously increased.

● Transverse ram shafts are pressure sealed at both ends affording "balanced pressure" operation. Shafts rotate — do not pull abrasives into seals as with sliding rods.

● Compact hinged bonnets allow easy access for simplified ram changing. When fully retracted the roller and arm assemblies drop free of the rams. Ram bores are relieved toward bonnets to ease ram removal.





● New simplified operators are attached to one side only.

● The operator can be removed and overhauled or replaced while drilling with no loss of rig time.

The Type "F" Preventers are smaller and lighter in weight than any previous model. They are available in sizes from 6" (7" bore) to 20" (20¼" bore) with working pressures to 15,000 psi. Every "F" Preventer can be supplied with a choice of side outlets. In most cases this will eliminate the drilling spool and reduce drilling hookup height. Whether your drilling requirements call for light, medium, heavy, or extreme duty hookups, there is a Cameron Type "F" Blowout Preventer to serve your needs.

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60-Second Summary / WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK

April 3, 1959

dept/INDEX

Production	29
Transportation	62
Processing	36
Marketing	70
Washington	24
Statistics	67
The Market Trend	68
Key Prices	69
Editorial	76
International	58
Personals	74
Service & Equipment	72
Petroleum Comments	26

Most oil companies predict 1959 operations will be greatly improved over 1958. But in their reports to stockholders they warn that spiraling wages without similar gains in productivity could wreck the industry and the nation's economy. . . . p. 15

•

The need to reduce operating costs is providing the incentive for more automated pipelines. Stiff competition, pipeliners say, is forcing them to more efficient operations that can only be obained by more automatic controls. . . . p. 44

•

With no choice left, the industry has accepted mandatory controls—but with grave reluctance on the part of some. Socony Mobil's A. L. Nickerson, for example, feels that neither the nation nor the industry will benefit in the long run. . . . p. 16

•

Canadian Husky Oil is realizing plump savings by use of slim-hole exploratory drilling. It has meant the difference between a profit or a loss in Western Canada's Lloydminster region. . . . p. 29

•

Venezuela is going to make a really strong bid for Arab cooperation. A Venezuelan delegation will not only attend the Arab Oil Congress this month, but will also tour Arab states for further talks on "common interests." . . . p. 58

•

The seamen unions are trying to stir up a big fuss over the oil depletion provision. It's part of their attack on U.S.-owned tankers flying foreign flags. . . . p. 16

•

Middle East nations may become dissatisfied with their oil incomes this year. To offset recent crude price cuts, output would have to rise 11.9%, a move that is difficult—if not impossible—due to limited markets. . . . p. 26

•

Congressmen are returning from spring vacations, and oil companies can brace themselves for a new tirade of attacks. Mandatory import controls will provide the springboard for many to dive into the industry. . . . p. 24

•

A sharp decline in gasoline pump sales indicates a slower pace of service station building. Last year's sales were at the lowest level since World War II, and 34% less than 1957 pump sales. . . . p. 70

•

Percentage depletion is a "magic" tax provision with a simple purpose, one oil man says. It persuades people "who should know better" to risk their money. . . . p. 6

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK

April 3, 1959

The ceiling on residual fuel oil imports will be tighter than expected —347,311 b/d, nationwide for the period through June 30. The allocation, based on 1957 volume, had been expected to run about 400,000 b/d. So far this year residual imports have averaged 850,000 b/d. East of the Rockies, the residual quota was set by Interior Dept. at 343,445 b/d. West Coast imports of resid will total 3,866 b/d—all by the government.

Jersey Standard received the lion's share of the residual allocation —104,210 b/d, or 30% of the nation's total. However, during recent months Jersey had been importing nearly 300,000 b/d of resid.

Other residual allocations (all east of Rockies) are (in barrels daily): Ashland Oil, 156; Asiatic Petroleum, 702; Atlantic Refining, 272; Ballard Oil, 3,985; Belcher Oil, 1,580; Buckley Bros., 4,250; Central Petroleum, 3,187; Colonial Oil, 3,744; Defense Dept., 1,375; Eastern States, 7,112; Gulf Oil, 2,019; Hess, 38,928; Metropolitan Petroleum, 20,986; New England Petroleum, 8,523; Paragon Oil, 54,423; Pure Oil, 403; Royal Petroleum, 2,510; Shell Caribbean, 12,719; Shell Oil, 4,014; Sinclair Oil, 286; C. H. Sprague, 21,495; California Standard, 1,102; Indiana Standard, 21,683; Kentucky Standard, 11,066; Stuart Petroleum, 3,900; Texaco, 850; Whale Oil, 301; White Fuel, 7,664.

•

The government got nearly half of the quota of other finished products, totaling 76,646 b/d nationwide. East of the Rockies these products imports are limited to 69,895 b/d, divided among: Anchor Petroleum, 5; Asiatic Petroleum, 31; Defense Dept., 30,554; Gulf Oil, 2,723; Hess, 3,234; Paragon Oil, 1,052; Pure Oil, 5; Royal Petroleum, 1,476; Shell Oil, 9,789; California Standard, 6,818; Jersey Standard, 13,590; Sun Oil, 604; and Western Solvents, 14. West Coast: Defense Dept., 3,876 b/d; Alaskan Propane, 35; Fairbanks Plumbing, 9; Shell, 186; Solar L-P Gas, 10; California Standard, 567; Time Oil, 2,068.

•

The Royal Dutch Shell group this week announced a sweeping reorganization. It is separating its oil and chemical operations—because of the growing importance and basic difference of its chemical business—and it is streamlining its administrative and advisory structure.

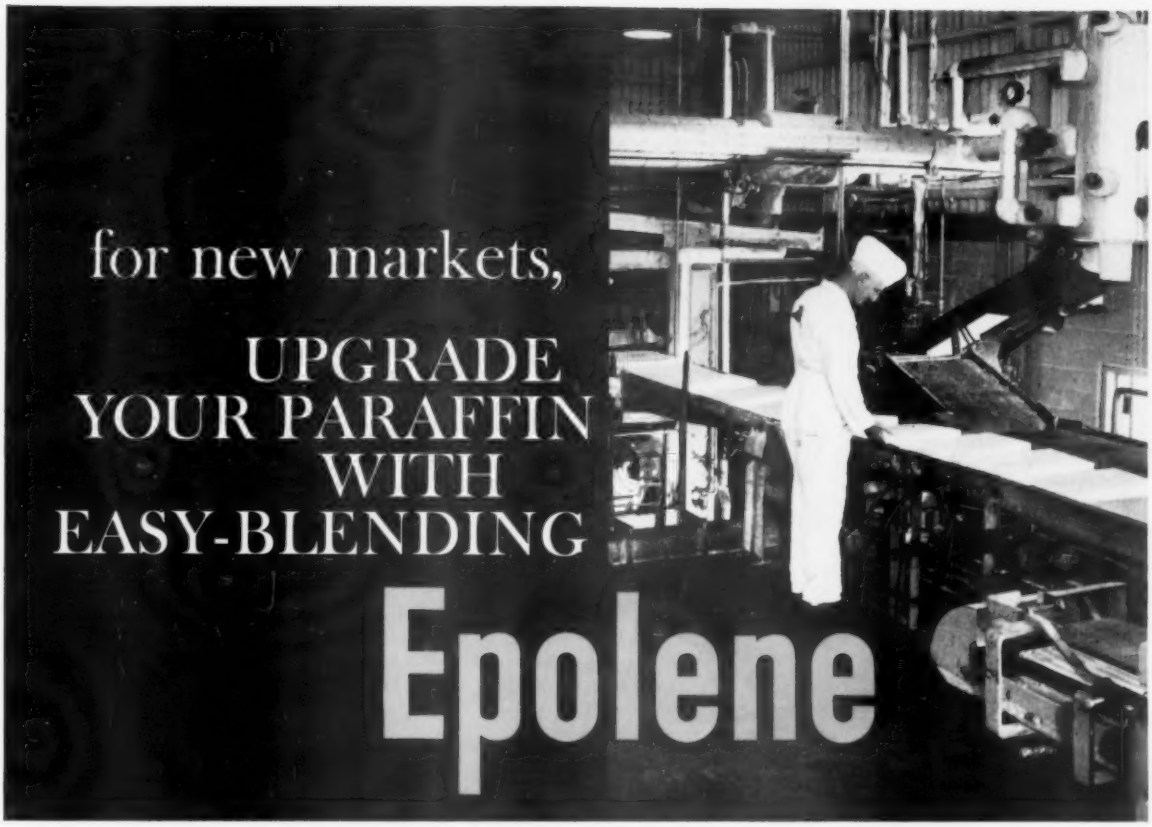
Four new companies with non-duplicating functions will go into operation Apr. 6—two for oil and two for chemicals.

•

Independent union leaders at Baton Rouge, La., are offering Esso a choice between Jimmy Hoffa and certain contract terms. They want (1) the refinery mechanic classification abolished, (2) plantwide seniority in layoffs, promotions, or demotions, and (3) recognition of all process employees. Otherwise, they say, they will join a national union, such as the Teamsters.

•

Gulf Oil, effective April 1, cut Texas and Louisiana Coastal crudes from 7¢ to 15¢ a bbl., affecting 185,000 b/d. Top posting was cut 7¢ and gravity differentials below 40 gravity increased to 3¢ a bbl.



Paraffin producers are blending their way to new and profitable markets with Epolene, Eastman's low-molecular-weight polyethylene resins.

Paraffin modified with Epolene has superior abrasion resistance, higher gloss. Epolene improves resistance to flaking and cracking, too, by providing better adhesion and greater flexibility. Other benefits: higher blocking temperatures and resistance to thermal shock.

Epolene is available in four types. All are supplied as small, white pellets for easy handling, rapid blending. These resins range in molecular weight from 600 to 6,000 and possess varying degrees of linearity (densities 0.907 to 0.935), providing paraffin formulators with a choice of performance characteristics to meet a variety of processing and end-use requirements.

For further information and samples of these Eastman low-molecular-weight polyethylene resins, or for assistance in evaluating Epolene in your paraffin products, call our nearest representative or write Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Company, Chemical Division, Kingsport, Tennessee.

Physical Properties of Epolene

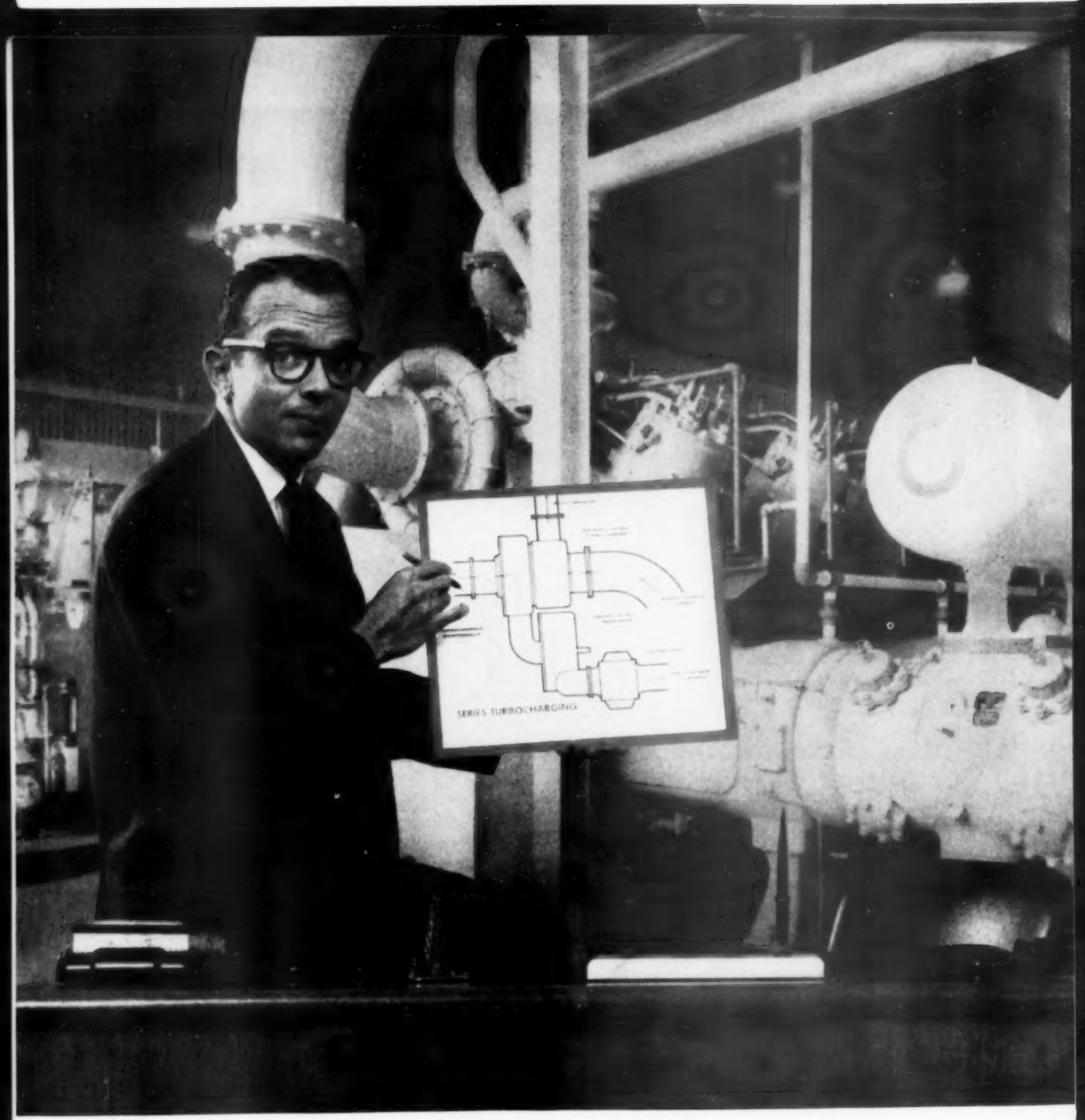
Property \ Type	N	E*	C	LV
Ring and Ball Softening Point, °C	106	105	101	103-4
Color, Gardner scale, max.	2	2	2	2
Viscosity @ 212°F (2% blend in 130°F paraffin), cps.	4.4	4.1	4.9	4.0
Cloud point (2% blend in 130°F paraffin), °F	181	180	164	172

*emulsifiable

Epolene

EASTMAN LOW-MOLECULAR-WEIGHT POLYETHYLENE RESINS

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Chicago; Cincinnati; Cleveland; Framingham, Massachusetts; Greensboro, N. C.; Houston; New York City; St. Louis. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.



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Donald L. Reed, *Manager Gas Engine Compressor Sales, The Cooper-Bessemer Corporation, explains . . .*

How you get 40% more power with the latest Cooper-Bessemer V-Angle Compressors

The diagram explains Cooper-Bessemer's series turbocharging development. A step beyond ordinary turbocharging, *series turbocharging* assures an extra performance margin throughout the operating range, plus these unmatched advantages:

40% greater horsepower than predecessors of the same bore, stroke and speed.

Reduced fuel consumption . . . as low as 6900 Btu/bhp/hr—proof of series turbocharging's greater efficiency.

Space savings. Greater output, combined with inherent compactness of V-angle design, results in lowest cost per horsepower for housing, foundation, piping, maintenance, supervision.

Superior altitude performance. Inherent flexibility of the series turbocharging system allows unique altitude compensation to assure full rated horsepower and highest efficiency.

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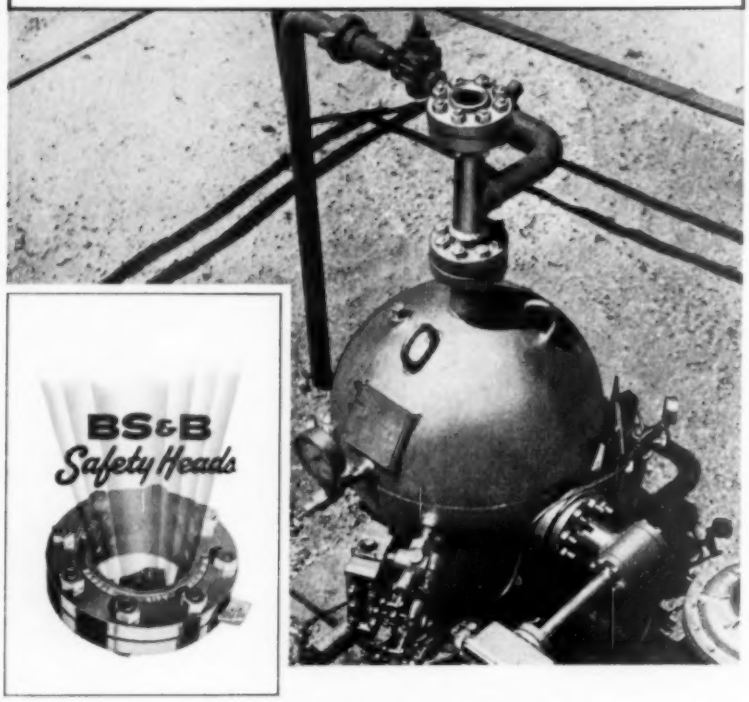

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Oil Is Optimistic on '59 Problems

The factors that adversely affected 1958 earnings—rising costs, high taxes, and tougher competition—will also influence 1959 operations, but most oil companies now predict substantial improvement this year.

That generally is the tenor of the annual reports now being received by stockholders of oil companies.

"We expect to participate in the general improvement which is evident in our economy," C. T. Foster, chairman, and C. E. Spahr, president, advised stockholders of Standard Oil Co. (Ohio). Their comment is fairly typical of the optimism that now prevails in the industry.

But the industry's problems are numerous. "The long-term outlook in the U. S. is somewhat clouded by the continued prospect of inflation, higher wage and material costs, and the narrowing of profit margins."

That is the view expressed by Augustus C. Long, chairman, and J. W. Foley, president, of The Texas Co.

They pointed out to their shareowners that "industry in general is deeply concerned by the increasing ability of organized labor to force inflationary wage increases that are clearly in excess of gains in productivity."

Henderson Supplee, Jr., president of Atlantic Refining Co., cited the rising costs from wage increases which outstrip productivity gains as "most serious" to the oil industry and the whole economy of the U. S.

Phillips Petroleum Co.'s report to stockholders explained that both wage increases, which do not result in proportionate increases in productivity, and "unnecessary government spending" contribute to the critical problem of inflation. "Higher prices are needed now to recover the general 5% wage increase of early 1959," the company stated.

The upward trend in costs coupled with the increasing difficulty of finding new reserves had led the industry to the point where "there is little, if any, profit at today's crude prices in reserves found currently," Carter Oil Co.'s president, John W. Brice, commented.

This is not only true for Carter, he noted, but for the domestic industry as a whole. "Today's profits are largely due to the sale of lower cost crude found years ago."

The "fantastically" increased cost of finding and developing oil and natural gas reserves is in direct contrast to the decline in prices of crude and products," W. S. Hallanan, president of Plymouth Oil Co., explained to stockholders.

Independent oil companies and individual operators have been the first and hardest hit victims of inflation, Hallanan added.

There is some disagreement on the over-all outlook for independents.

H. B. Fuqua, chairman of Texas Pacific Coal & Oil Co., sounded a strong note of optimism in his report.

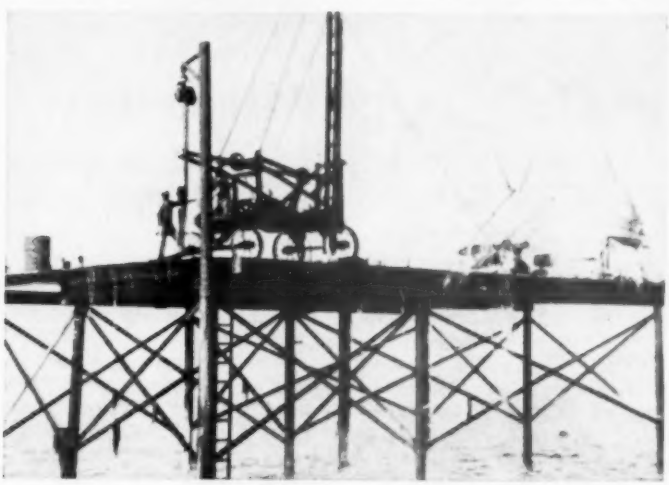
"The results of the past three years . . . and the forecast for the future all point to the continued importance of the independent domestic oil producer," he stated. Companies in this category, he said, continue to show the industry's most favorable earnings ratios and continue to exceed the industry's average in rate of oil discoveries and additions to reserves.

But Roland V. Rodman, president of Anderson-Prichard Oil Corp., is not so optimistic. "The outlook for the independent oil producer has badly deteriorated in the last 12 months," he noted.

While the industry's views vary sharply on the need for strict import regulation, oil companies are united in their support of a continuation of the 33-year-old percentage depletion provision.

"Should any change be made (in percentage depletion), it would be

Oil Man's Album



East Meets West on Offshore Rig, Circa '37

Wagon wheels as part of the drilling rig and teepees for the three-man crew gave the Middle East a Wild West flavor on this offshore rig in the Persian Gulf, back in 1937. To gain geologic information, an 8⅝-inch pipe was driven 600 ft. by a home-made pile driver, according to C. R. B. Hooper, a Standard Oil Co. of Texas engineer who was a member of the crew.

(No. 27 in a Petroleum Week series.)

wiser to increase rather than reduce the present rate of 27½%," is the view of Texaco officials.

"A thorough consideration by Congress will confirm its previous findings that no less than the present percentage depletion rate is essential to provide reasonably priced, adequate supplies of petroleum products for national defense and consumers," stated the top management of Phillips Petroleum.

"The basic solution of the critical problems facing the industry lies in a better public understanding of the vital importance of oil to national security and of the extreme hazards involved in exploration for petroleum reserves," Plymouth's Hallanan stated.

His views were echoed by many companies, some of whom urged their stockholders to write their congressmen on the issues of importance to the industry and to national security.

Import Controls Create Problems

There are deep-seated doubts in the minds of some industry leaders over the direction the industry is heading as a result of the government's mandatory import controls program.

This difference in views by segments and by individuals is probably more broad—and more intense—than over any problem the industry has faced.

Obviously, the reaction in many cases stems to a large extent from the direct, individual impact of the plan.

Producers, for the most part, are pleased because the increasing flow of foreign oil into the U.S. is being leveled off. This, they feel, will tend to make domestic crude prices more firm, thereby setting the stage for a steadier pace of domestic exploration, drilling, and production.

Independent refiners, particularly those inland, are also generally pleased. Their view is that they are now escaping an untenable situation in which they were trying to compete with refiners who have been using lower-cost imported crude.

On the other side, the ones hit hardest are international companies with large investments overseas, and coastal refiners running a high percentage of foreign crude.

Some marketer groups, too, have complained, fearing the step will bring higher product prices.

But the doubts extend beyond the individual and the immediate impact.

There are oil men who fear that the long-run result will be more and more control under which the entire industry will be the loser.

The view that the program has "glaring inequities" and long-range dangers was voiced this week by Albert L. Nickerson, president of Socony Mobil Oil Co., Inc.

Nickerson expressed his opinions in a letter to the company's stockholders.

He was critical of the new plan because of (1) its immediate operational limitations, (2) its impact on this nation's relations with other friendly nations, and (3) the likelihood of increasing government control of the oil industry.

Nickerson feels that the program as it is now set up has inequities that will do considerable harm.

He lists these three objections:

- The plan upsets traditional and normal patterns of supply and distribution by granting every U.S. refiner a quota for crude and unfinished products.
- The provision for sliding-scale quotas is "an unwarranted attack on bigness in business" and "by no stretch of the imagination" does it have anything to do with the stated reason for imposition of mandatory controls: national security.
- While the quotas on crude "discriminate" against established importers, the quotas on products make no room at all for the new importer.

Thus, Nickerson said, a company can suffer a sharp reduction in its crude oil quota and yet be prohibited from importing products—if it hadn't been importing them.

Nickerson believes that this nation's interest will be more harmed than helped by the limitations on imports, particularly from Canada and Venezuela. He noted that the Defense Department has stressed the strategic importance of Western Hemisphere oil resources.

The biggest danger of all, as Nickerson sees it, is that the program will breed a multitude of new problems, and that the government will attempt to solve them, not with less regulation, but with more.

He noted specifically that the government is already planning to keep an eye on oil prices. "It would seem shortsighted at best to assume that any government agency possessing such power will never use it," he said.

Flag Fight Target: Depletion

A new attack is now being made on oil's percentage depletion, this one by Maritime unions who are opposing foreign registry of U.S.-owned tankers.

The nation's two largest maritime unions, in their all-out fight against U.S.-owned ships of foreign registry, last week drew a bead on the oil companies and fired away at the industry's percentage depletion provision.

Couched in letters to Congressional committees, the attack added another blast to the depletion provision opposition and drew counter fire from the American Committee for Flags of Necessity, which branded the letters as "irresponsible."

The protests, by the Seafarers International Union and the National Maritime Union, stemmed from the unions' objection to registration of American-owned tankers under the flags of Panama, Honduras, and Liberia (PW—Jan.30'59,p13).

In their drive to organize the crews of such tankers, the unions refer to the foreign banners as "flags of convenience," which, they claim, have been acquired to avoid the taxes and high wages of U.S.-registered ships.

On the other hand, the tanker owners call them "flags of necessity," maintaining that they could not afford to operate under U.S. registration without subsidies.

In separate letters to Congress, both the Seafarers International Union and the National Maritime Union accused the oil companies of "shirking their fair share of taxes."

Joseph Curran, SIU president, observed in his letter that U.S. tankers operating under foreign flags avoid taxes, yet use U.S. taxpayer-supported

harbor and navigation improvements and demand U.S. Navy protection. In the other letter, Paul Hall, NMU's president, said that if Congress should decide to subsidize the tankers "in order to maintain them under our own flag, then it would certainly be in the national interest to apply some of the enormous tax allowances, by which owners of the runaway-flag ships are already subsidized, to such a program."

As chairman of the American Committee of Flags of Necessity, Erling D. Naess, opened counter-fire on the unions by sending a rebuttal letter to all Congressmen.

The attack on the depletion provision, he said, "is so far removed from the international shipping issues at hand that it can only be described as irresponsible . . .

"The purpose of this (the unions') action is to coerce a few American oil companies to accede to union demands to organize foreign seamen of American-owned ships registered in Panama, Honduras, and Liberia."

The percentage depletion provision, Naess pointed out, applies "to all crude producers, not just to the few producing oil companies who operate tankers under foreign flags." Many of the controversial tankers are operated by independent shipowners "none of whom are oil producers."

In emphasizing the irrelevance of percentage depletion to the tanker-labor issue, Naess explained that depletion is an incentive "to encourage the finding and development of new domestic oil reserves—vital to our economic progress and national security.

"To decrease or eliminate this deduction," he added, "would strike a heavy blow at thousands of small businessmen, and millions of car and home owners, not only at a few major oil companies."

This latest exchange in the flags-of-necessity-convenience battle came as the U.S. State Dept. prepared to enter the fray.

Reportedly causing the State Dept. concern is the possibility that decisions permitting the unions to organize foreign ships might be contrary to navigation treaties with Liberia and Panama.

A Shipping Coordinating Committee, sponsored by the State Dept., was scheduled to be held this week in Washington with discussion of the foreign-flag issue on the agenda.

Both Naess and Hall were invited to attend as well as Hoyt Haddock, executive secretary of the Maritime Committee of the American Federation of Labor and the Congress of Industrial Organizations.

They Polish Plans for Oil Congress

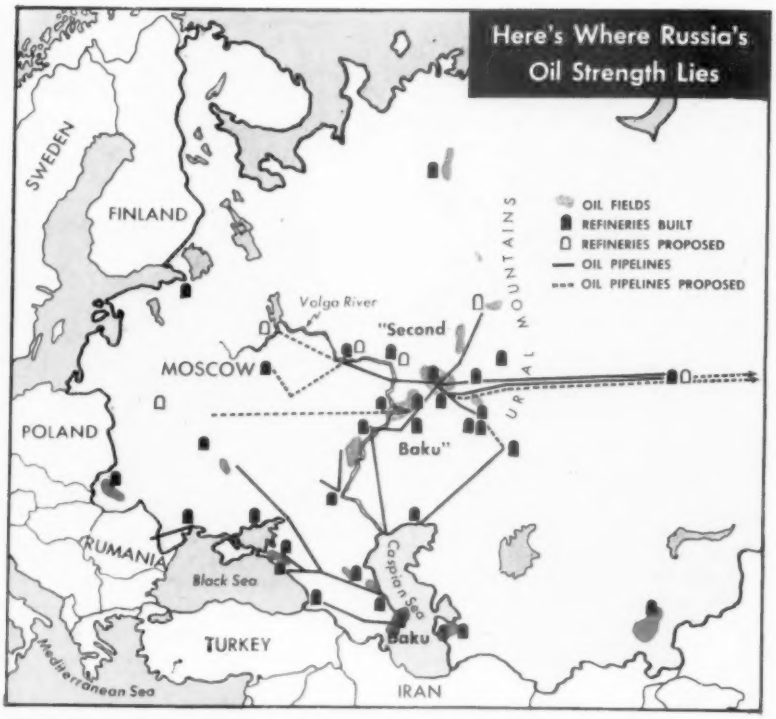
Intensifying efforts this month to make sure all goes smoothly for 5,000 oil men at the Fifth World Petroleum Congress in New York May 30-June 5 are these planners . . .

TOP CONGRESS OFFICIALS, Shell Oil's H.S.M. Burns, president of the Fifth Congress, and C. E. Davis, general secretary, shown checking floor plans of the New York Coliseum, site of the Congress.

PUBLIC RELATIONS MEN heading advisory committees are (left to right): J. F. Gow, Tidewater; J. K. Evans, Asiatic Petroleum; J. R. Shaner, API; G. G. Biggar, Shell; and C. B. Towill, Congress representative.

SECRETARIAT STAFF, shown at New York Congress office are (left to right): J. W. Muckell, C. B. Towill, G. W. Duncan, Miss Fan Cox, F. C. Cutting, and H. R. Tate. For Congress details, see PW—Jan.23'59,pp72-92.

THIS 2,500-MI. 28-IN. LINE will pump oil from the Volga River area to Siberia.



EUROPEAN RUSSIA is the hub of Soviet oil activity, which is now branching out to the east to feed Siberia, and to the west to bring more oil to the satellites.

The Soviet Oil Industry Gears for It

The Soviet Union is counting heavily on the oil and gas industry in its race with the U.S. for world supremacy in industrial production.

A new seven-year plan (1959-65), adopted at the recent party congress in Moscow, is set to fire the skyrocketing industrial plans: It calls for an over-all 80% boost in industrial production, and is based, the Russians say, on a shift in favor of oil and gas as being the most economic fuels (PW—Nov.21'58,p7).

At the end of another seven years —by 1972—the Soviets aim to surpass the U.S. in total industrial production, and rank second as the world's leading crude producing country ahead of Venezuela.

The Russians are sure of their ability to meet their new goals: doubling today's crude output to between 4.6-million and 4.8-million b/d by 1965, with a further boost to between 7-million and 8-million b/d by 1972. (That's just about equal to today's total U.S. output.)

For instance, one of the top officials at the Ministry of Petroleum talks not of the troubles of finding new oil fields in the USSR, but of decisions to develop those closest to industrial areas, so that transportation problems are eased. "We have plenty of oil underground," he says.

The Russians are also confident about their new gas output targets: 14.5-billion cu. ft. daily by 1965, which is five times the 1958 total of 2.9-billion cf/d, and 27-32-billion cf/d by 1972. This compares with a current U.S. output of 30.7-billion cf/d.

Also by 1972, the Soviets expect to be putting down 65.6-million ft. of hole a year, compared with 16.4-million ft. in 1957. In 1957, the U.S. total was about 219.4-million ft.; in 1958, about 194.8-million ft.

One reason for the Soviet confidence is faith in their technical developments—particularly the turbodrill and electrodrill.

One Russian oil official also points out that automation in the oil fields has been started in a big way, and that remote-control installations—in which the work of hundreds of wells can be handled from a single control station by means of radio and television—are springing up.

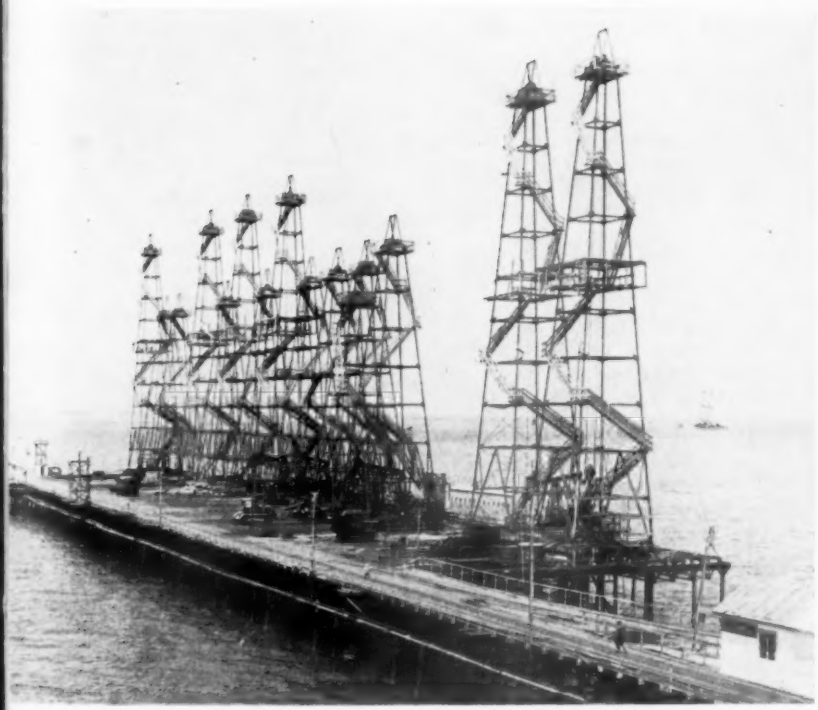
The Russians also say they have a rig capable of reaching 50,000 ft.; a gamma ray water-seepage meter; some flat-rolled oil field pipe that can be wound up into a coil; a bullet-type perforator to fire through walls of two casing columns for penetration into hard sandstone; and an experimental "oxygen lance" for "flame" drilling, replacing the drill bit and using no drilling mud. (This is regarded as a laboratory curiosity by U.S. oil men, who report that Russia is behind the U.S. Linde drill used by steel companies.)

U.S. oil men are not discounting the probability of Russia's meeting its goals, either. And some of them are showing increasing concern over just how much of the increased output will reach world markets.

Soviet exports to the Free World—though still a drop in the world-market bucket—have been steadily climbing, up to 240,000 b/d last year. One U.S. economist predicts they could reach 2-million b/d by 1972 (PW—Jan.16'59,p62).

Russia has found oil a highly effective economic wedge in Western markets, as well as an effective cold war weapon in forging ties with many "neutral countries." U.S. oil men say they just can't compete with Russian oil: Moscow's prices, politically based, are simply too low and too easy to pay.

A look around Russia by a Petroleum Week correspondent shows why



SOVIET RIGS line up along the offshore areas of the Caspian Sea in Azerbaidjan. Now, the Russians say, offshore work will be carried 120 mi. out into the central sea area.

Biggest Expansion Yet

the Soviets are busy with plans to bring more oil above ground.

A drive down the wide avenues of Moscow or along the undulating highways that cross the western plains of the Soviet Union shows an increasing number of vehicles on the road. But Moscow is still relatively free of automobiles compared with New York or Los Angeles. There's no rush-hour problem in the Soviet capital.

More automobiles—the Pobieda, the Moskovich, and the Volga—are going on private sale. Their prices of 15,000 to 30,000 rubles put them far out of the reach of the ordinary Soviet worker, whose average take-home pay is in the neighborhood of 700 rubles a month. But now he can borrow money at his factory credit union to pay for a car. And with the new cars will come a mounting demand for gasoline.

You cannot travel across Russia without being impressed by the number of men in military uniform and the machines they operate. On every clear day, for instance, the Soviet sky is etched with the vapor trails of high-flying jets.

The military services today are the Soviet Union's biggest users of petroleum products.

As Russia's Aeroflot jet airline increases its network of 63,000 route miles, comparable with that of Pan American World Airways, additional quantities of petroleum will be needed for this big customer.

More oil will be needed in other areas, too: While you still see horses and carts, they are becoming fewer and fewer. And horses are also being replaced by thousands of tractors on collective farms.

Trucks are already big users of oil products. And the Soviets are now mass-producing both gasoline and diesel buses for medium- and long-haul uses.

In cities such as Minsk, Smolensk, Leningrad, and Moscow, electrically powered trolley cars are in common use. But even here, oil plays an important part: It is used to fire Russia's power stations.

There are also reports that the Soviets are converting their railroads from coal to diesel-type fuel.

Add to all these the expanding number of industrial plants and the increased emphasis on petrochemicals, and it's obvious why expansion of the oil industry is today one of the primary Soviet goals.

The Russians are pinning most of their oil hopes on the "Second Baku," which today accounts for roughly 2/3 of total crude output.

The area is expected at least to hold that percentage, or to boost it, under the new output plans. This region between the Ural Mountains and Volga River is bigger than Texas, Oklahoma, Louisiana, and Kansas combined.

The Communists say they didn't do much to develop this area until the war. Then, many industrial plants were moved into the area from the more vulnerable west.

To give an idea of the field's oil output growth, the Russians point to a 1937 production figure of about 20,000 b/d, and then to a 1957 figure of 1.3-million b/d.

Most of the rest of the boost is stated to come from Azerbaidjan, including the original Baku field.

Offshore production in the Caspian Sea now accounts for a large percentage of the area's output, and is giving a considerable boost to the declining on-shore fields. Under the new seven-year plan, output in this area will climb some 30%. New attention is also being given to the eastern side of the Caspian.

Russian oil men say they have had great success with large-scale secondary recovery.

V. Kalamkarov, a member of the State Planning Committee, writes in the Moscow News that, today, some 70% of the oil produced in the Soviet Union is coming from fields where such methods are used. In 1957, he adds, water or gas injection boosted the yield of Soviet fields by about 500,000 b/d.

Methods to stimulate production, including hydraulic fracturing, acidization, and the use of surface-active elements, are also widely used.

The Russians also claim that new methods have radically cut production costs. Between 1955 and 1957, capital investment per ton of increase in oil output was 57% lower than in the period 1951-53, and the cost of oil extraction was cut by more than 40% from 1951 to 1957.

There are now some 35,000 wells in the country, producing more than 2.2-million b/d. Average well output is 64 b/d.

Moscow is pushing exploration, with particular emphasis on the eastern sector. Geological survey work is to be stepped up by 65%.

With a big industrial build-up due, exploration crews are searching the Siberian wastes. And the Soviets report they have met with some success.

In the desert regions of the Soviet

THIS LOGGING TOOL—a radioactive device—is one of the many new pieces of equipment the Communists are developing.

Union, the Russians say they have overcome access difficulties by the use of aerial survey methods and lightweight geophysical equipment designed for plane or helicopter transport.

They reported at a recent U.N. meeting in New Delhi that seismic profiling in the wooded and marshy areas of western Siberia had been carried out along rivers with boat-mounted equipment. Where rivers do not exist, seismic equipment was transported by helicopter to prepared clearings. The telluric method, they said, has been found very useful for advance reconnaissance surveys in such regions.

Increases in refining capacity are apparently lagging well behind slated production increases.

A slow construction rate seems to be the big hurdle. Officials complain that it just takes too long to get a plant on stream.

With the emphasis on middle distillates, Russia has slated several new refineries, which, under the new seven-year plan alone, will more than double capacity. Some are already under construction.

Most of the plants—consistent with the current world trend—are being set up in consuming areas, with the crude piped in. Three new units are going up in Siberian areas, for instance. One is at Krasnoyarsk, the others are in Irkutsk and the Transbaikal area. Another group of plants will be built in the Second Baku region. And a plant will be built in Byelorussia, at Polotsk, fed by a 1,200-mi. pipeline from Tartaria and Bashkiria.

While Russia's total refining capacity is estimated at 2-million b/d, the Russians put it this way. "The volume of oil processing in our country exceeds Britain, France, Western Germany, and Holland, combined." That's over 2.1-million b/d.

Capacity is slated to reach 6.9-million b/d by 1972.

One Russian official points out that Russia faces many processing problems.

Together with an increase in the production of light fractions and lubricants, he says, it is necessary to improve sharply the quality of oil products: (1) to boost the antiknock properties of gasoline; and (2) to reduce the sulfur and paraffin content of diesel fuels.

A major problem is the high sulfur content of crude from the Second Baku.

The Russians say their "high-octane" gasoline is 74-octane. But its performance indicates it is less.

PETROLEUM WEEK's Moscow correspondent found that his British Ford, which averages 24 mi. per gal. on Western gasoline, fell off to 15 mi. per gal. in Russia.

Some new refineries, however, are slated to produce 89-octane gasoline.

Since there is no marketing competition, the Soviets just don't have any "marketing technique."

Today's Soviet service station is more apt than not to be a rusty pump in the middle of a dirt corral. And the attendant who fills your tank is generally a peasant woman in a head scarf.

The only "service station" between two cities 200 mi. apart may be closed when you get there. (This, of course, is one advantage of a complete market monopoly: You don't have to worry about your competitor down the road.)

However, as part of the drive to attract more foreign motorists to the Soviet Union, the Russians have built some Western-style service stations, and more are planned.

Several new highways have been opened to tourists in the past few years. But sometimes it's a long distance between stations. Along the 700-mi. highway between Moscow and Brest Litovsk, on the Polish border, there are something like seven modern stations supplying "high-octane" gasoline.

In line with its crude output goals and refining buildup, Russia has plans for a whopping increase in pipeline volume and mileage to move its oil and gas to consuming areas.

Over 9,300 mi. of oil pipelines—mostly crude—will be laid in the Republic of Russia alone. And a 2,500-mi. crude line is now being laid from the Second Baku to Irkutsk, in Siberia, which will bring oil to the Pacific regions. Most of the oil now used in this area is brought by tanker from the Black Sea via the Suez Canal. The exception is some local production on Sakhalin Island.

Nearly 40 trunk gas pipelines will be built under the new seven-year plan. And a spokesman for the Central Gas Production Board, in Moscow, says the total length of well over 16,000 mi. will be "2½ times as much as has been built in the entire history of the Soviet oil and gas industry."

The Soviet ocean tanker fleet is also being expanded. A 40,000-ton vessel has recently been launched, and a second is under construction at Leningrad.

Others of this size are slated to be built.

The Russians already have 54 ocean-going tankers in the 2,000-ton-and-over class. Total tonnage for the fleet is 531,300 dwt. Average dwt. is 9,800; average speed is 11.8 knots.

Moscow is planning a 2,500-mi. export pipeline to its East European satellites, which will feed East Germany, Poland, Hungary, and Czechoslovakia.

The Economic Council of the Communist Warsaw Pact has approved plans for the 100,000 b/d line. It is slated to carry crude from Baku, on the Caspian Sea, through the Ukraine and Poland, to Frankfurt-on-Oder, to refineries and petrochemical plants that East Germany plans to build with Russian aid.

There has been some speculation that, while the byproducts of the new refineries may be slated for the chemical industry, the rest may find its way into Western markets.

The Soviet satellites are slated for bigger imports of Russian oil. Although most of the countries are basically dependent on coal, industrial expansion plans are reportedly dragging because of the unavailability of fuel.

All of these countries, with the exception of Albania and Rumania, are net importers of oil. And their industrial plans are now being revamped to mesh with Russia's new seven-year plan.

Rumania contributes the biggest chunk of satellite oil output—about 260,000 b/d.

Satellite production is expected to climb, however, with output expansions in Rumania, Albania, Hungary and East Germany.

The satellites are also planning a big buildup in their 331,000 b/d refining capacity, with a new 40,000 b/d refinery slated for Poland (to be doubled later), a "large-size" unit for East Germany, a 20,000 b/d plant for Bulgaria, a 70,000 b/d for Czechoslovakia, and several new chemical units for Rumania, where 240,000 b/d was processed last year.

Communists Take New Line on Arab Oil

Communist mouthpieces in the Arab world have come up with a new line on Arab oil: American oil companies and Nasser are working hand in hand to gain exclusive control of Arab oil.

According to official Communist publications in Baghdad and Beirut, American oil "monopolies" and President Nasser of the United Arab Republic reached an understanding some time ago to share the Arab world's entire oil resources between themselves.

It is the intention of the "monopolies," these newspapers say, to place all Arab petroleum resources—oil fields, pipelines, terminals—under one authority: Nasser's.

Communists claim American oil companies are still up to their old tricks of fomenting troubles in the Middle East's oil areas. Having failed in all their previous attempts with "imperialist stooges" like the late Nuri Said of Iraq, the oil "monopolies" have resorted to working through Nasser.

According to An-Nida, a new communist daily in Beirut, the American oil "monopolies" are behind Nasser's current onslaught against "democratic Iraq."

In addition, An-Nida has come up with this one: U.S. oil companies are also behind the sporadic outbreaks in Lebanon as well.

The intention in Lebanon, the paper charges, is to split the half-Christian, half-Moslem republic in two, and to hand over the predominantly Moslem pipeline terminal towns of Tripoli and Sidon to the UAR.

Harping on the same theme, the Beirut weekly Al-Akhbar editorialized that "Lebanon's turn would have come soon" after the Mosul revolt in Iraq, "because it is in the plans of the American instigators of the plot to control the oil of Iraq."

As this Communist paper sees it: "Success of the American attempt to control the oil of Iraq would have required as logical consequence the control of the terminals."

Youssef Khattar Helou, "specialist" in oil affairs who writes regularly in the same Communist paper, also claims to find collusion between American oil companies and Nasser in the recent unsuccessful nationalist revolt in northern Iraq:

"The choice of Mosul in carrying out the American imperialistic conspiracy against the Iraqi republic was no coincidence," he writes. "It was carefully planned that the conspiracy should start in this oil-rich province, because America is seeking to control Mosul oil completely, and without any partners.

"Should the Iraqi government lose control of Mosul oil, it would face economic difficulties. It would then be easy for the Americans to overthrow the democratic regime in Iraq and replace it with a dictatorship directly or indirectly linked with imperialism."

The recent conspiracies in Iraq, Helou claims, "prove" that American oil companies "want to make use of Cairo's influence over the other Arab states in order to consolidate American positions in the Middle East.

"But the Iraqi regime shall remain always watchful, cautious, and united. With these weapons it will crush all conspiracies of American oil companies, American imperialism, and their agents in the Middle East," Helou concludes.

Further "proof" of "collusion" between Iraq's pro-Nasser nationalists and American oil companies was seen by An-Nida in the demand by the rebels in Mosul that Iraq Petroleum Co. make oil payments to them instead of to the Baghdad regime of Premier Kassim.

If the anti-Kassim rebels failed to win all of Iraq, An-Nida said, their plan was to split Iraq in two and annex the oil-rich northern region—including Mosul and Kirkuk—to Nasser's United Arab Republic.

Nasser pooh-poohs the charge that he has his eye on Iraq's oil.

He said in a speech in Damascus last week that the United Arab Republic does not "need or covet" Iraq's oil wealth because the UAR is already richer than Iraq.

He termed the Communist statements as "lowly methods . . . to divide the Iraq people from the people of the UAR. . ."

Luxury Liner Smashes Oil Tanker

The oil tanker Valchem was ripped open last week when it collided with the luxury liner Santa Rosa in an early morning fog off the coast near Atlantic City, N. J. Four members of the tanker's crew were killed; all aboard the Santa Rosa escaped injury. The damaged tanker is shown in the photo above.

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What's New / IN THE INDUSTRY

The "battle" for independent oil unions appears to be just starting. Last week, the Oil, Chemical & Atomic Workers Union was hot on the heels of the bid made by James Hoffa's International Brotherhood of Teamsters to independently-represented Esso Standard employees (PW—Mar.27'59,p14). OCAW President O. A. Knight has visited independent oil unions on the Gulf Coast in an effort to bring them into the OCAW fold.

The Federation of Independent Oil Unions, which is composed of several independent labor groups, including those representing Esso employees, is also active in its efforts to prevent inroads into the oil labor unions by the Teamsters.

•

Standard Oil Co. of California plans an 18,000-ft. test in Alaska, the deepest yet in the new state. The test, still in the planning stage, is scheduled to be drilled on the Kenai Peninsula for the company by Mountain States Drilling Co., Denver.

•

The limitation on overriding royalties on federal gas leases has been dropped. The Interior Dept. this week killed the regulation that limited total payments to 17½% of production (including the 12½% federal royalty). The 17½% limitation still applies to oil produced on federal leases, however.

•

Allowable crude production in Oklahoma and Kansas in April remains unchanged from the March permissible. In Oklahoma, the Corporation Commission adhered to the requests of producers to maintain the March allocation despite a cut in purchasers' nominations. Buyers said that seasonal changes in demand were behind the cuts. The commission, however, decided to continue at the March rate, permitting production of about 560,000 b/d. In Kansas, the April allowable was continued at 327,000 b/d.

A slight increase in crude production in Utah will occur this month as a result of a higher gas permissible. The Oil and Gas Conservation Commission established the per well gas output for April at 193,011 cu. ft. daily for the Aneth area of San Juan County, compared with 160,931 cu. ft. daily in March. Crude production is limited to the ability of El Paso Natural Gas Co. to take casinghead gas from oil wells.

•

Puerto Rico's Public Service Commission has approved plans for a 95-mi. pipeline on the island. The line will be an 8-in. products carrier, connecting Commonwealth Oil Refining Co.'s Penuelas plant with Catano, near San Juan.

•

The proposal by one railroad to offer preferential rates to large volume shippers is under attack by competitors. The plan, called an "agreed charge," would give such preferential rates to shippers committing a specific percentage of their total shipments to the line (PW—Nov.21'58,p47). The proposal was made by the Minneapolis, St. Paul & Sault Ste. Marie R.R. (Soo Line), modeled after contracts in effect on Canadian lines. This week, however, the American Waterways Operators, Inc., representing the barge and towing industry, asked the Interstate Commerce Commission to deny the plan since it would "have far-reaching effects on the whole established system of ratemaking in the U.S. The underlying principle involved," the Waterways Operators said, "contradicts the National Transportation policy." The proposed rates "are lower than necessary to meet competition and therefore are in violation of Sect. 1 of the Interstate Commerce Act."

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Looking Ahead in Washington

McGraw-Hill
Washington
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April 3, 1959

The Congressional split over oil import controls may foster stormy Washington weather for the entire industry. Look at the initial uproar over import restrictions, as reflected on the floor of the House and Senate. Members took part in some of the most heated debate over oil since the days of the Suez Canal crisis. Only the ten-day spring recess ended the furor.

Now the lawmakers are returning from their home states with fresh looks at the political barometer. Two basic camps—congressmen from consumer states and those from fuel-producing areas—will remain at odds. Sen. William Proxmire (D., Wis.), for example, wants to rescind the mandatory controls on imported oil. Sen. Joseph C. O'Mahoney (D., Wyo.) wants to underwrite controls with specific legislative authority. O'Mahoney plans to hold hearings on his bill, and the disagreements will thus get even further airing.

The consumer-producer fight will be continued when the depletion provision comes up for another Senate vote. Proxmire still plans to offer a depletion cut as an amendment to some tax bill soon. He hopes to get about 40 votes this year. And depletion, usually an issue on which the industry is somewhat united, now may face opposition from oil jobbers and others who are unhappy with import controls.

•

Here's the type of criticism the industry will hear in the weeks to come. Proxmire, for instance, will continue the tack he is using against import controls:

• **"The oil industry has won a position of excessive and corrupting power and influence in our federal government."** Although Proxmire used those words in attacking restrictions on imports, both domestic producers and importers will hear them when the depletion debate comes. Imports regulation, Proxmire insists, is "just the latest instance in a series of immense political privileges for oil, featured by the lushest tax give-aways any American industry has ever enjoyed."

• **"Congress should investigate reasons why the Justice Dept.'s civil suit against five large petroleum companies . . . has remained inactive."** In defending the controls on residual fuel oil, Sen. Jennings Randolph (D., W. Va.) aligned his coal interest with that of domestic oil producers, but called for action on "that alleged cartel operation."

• **"I was one of the first to protest this outrage perpetrated upon the consuming public of this country."** So said Rep. John D. Dingell (D., Mich.), who claimed the public will be victimized by increased prices because of import curbs. Like Proxmire in the Senate, Dingell in the House is also opposed to the present depletion level, to natural gas legislation, and to other industry aims.

• **"The only thing that remains uncontrolled is the stranglehold which the oil industry has on our economy."** That's Rep. Charles A. Vanik (D., Ohio) speaking. He, like many members of Congress, both Republican and Democratic, assails the entire industry while tentatively supporting one segment of it.

The attacks aren't going unchallenged. Recently, Sen. Russell Long led a group of senators in a strong defense of the imports control plan.

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An Awkward Time To Cut Profits

The oil industry faces a touchy situation in the Middle East today: The recent Middle East price drop threatens to cut incomes of the oil producing countries at an awkward time.

The 18¢ cut in crude oil postings means a 9¢ reduction in governmental income on each barrel produced. This amounts to a slash of some $135-million in total annual revenues of Middle East governments, based on the 1958 rates of oil production.

The slashes would vary—around $24-million for Iraq, $27-million for Iran, $33-million for Saudi Arabia and $46-million for Kuwait at last year's production rates—as the following estimates show (production in thousands b/d, income figures in millions of dollars):

	Iraq	Iran	Kuwait	S. Arabia	Qatar
1958 output	725	821	1,396	1,015	174
1958 income	$238	$258	$408	$318	$59
1958 income if price had been 18¢ lower	$214	$231	$362	$285	$53
Income drop	$24	$27	$46	$33	$6
Output needed to make up cut of ...	80	96	178	119	19
% Rise needed ..	11.0%	11.7%	12.7%	11.7%	10.9%

For many years, the Middle East producing countries have been used to expecting steady (and substantial) yearly increases in oil revenues.

The question now is not merely how they will react to a slowdown in their curve of expectations; the big question is whether the industry can raise Middle East output sufficiently this year to avert actual sharp cuts in government incomes.

The price cut has come as something of a rude awakening in the Middle East, because this is the first time prices have fallen since the adoption of the 50-50 profit sharing pacts. It never occurred to most Middle East governments that their prices could move in any direction but up.

* * * *

The question has arisen at a particularly awkward time, for several reasons:

(1) Several of the Middle East producing countries are operating on very tight budgets, which allow no room for income cutbacks.

Saudi Arabia, for instance, which depends on oil revenues for over 90% of its total income, has just gone through an extraordinary belt-tightening fiscal reform. Royal Family spending and all government expenditures have been slashed drastically, the currency stabilized, and the budget balanced for the first time in years. Yet the new balanced budget for 1959, published in January, was based on anticipation of larger oil revenues on the old price basis. Saudi Arabia's production would now have to be increased by some 119,000 b/d or 11.7% over 1958, just to offset the price cut—a considerably greater rise than registered in the last couple of years.

Iran, with its much larger population and big oil-financed economic development program, is also having budget difficulties. In fact, the Iranian Government has already expressed its dissatisfaction at its existing level of production and has strongly protested any effect of the price cut on its 1959 budget.

The other areas may be less pinched. Kuwait, with its large income and small population, could take a temporary cut in stride. And in Iraq, where oil production is programmed years ahead because of the time needed for constructing pipeline and other outlets, the production increase already slated for 1959 should offset the price cut.

(2) Venezuela's recent action in decreeing itself a higher tax bite on oil profits has not gone unnoticed in the Middle East. So far, there is every indication that none of the Middle East governments is thinking of following suit. In contrast to Venezuela, the Middle East agreements all specifically provide for 50-50 profit sharing, and, moreover, the pattern of operations in the Middle East is quite different from the Venezuelan. It is noteworthy, too, that recent oil discussions in Iran, Saudi Arabia, and Kuwait have all centered on interpretations of various clauses of the 50-50 contracts, but no questions have been raised on renegotiation of any of the basic terms.

However, it is equally true that the Middle East governments are all pressing for more oil revenues. If they don't achieve them through stepped up production under present contracts, dissatisfaction may become acute.

* * * *

While the oil industry is aware of—and sympathetic to—these budgetary problems, it faces a difficult task. As the table shows, it would have to step up Middle East output some 490,000 b/d this year, or 11.9% above 1958, merely to keep government revenues at the 1958 levels.

Finding markets for this extra volume won't be easy with the new U.S. mandatory import quotas, plus the slacker rate of growth being experienced in the Middle East's chief markets (European demand, for instance, is expected to grow only 8-9% this year as against last year's 14-15%). To raise Middle East production still further—enough for some rise in government incomes—may be well nigh impossible at this time.

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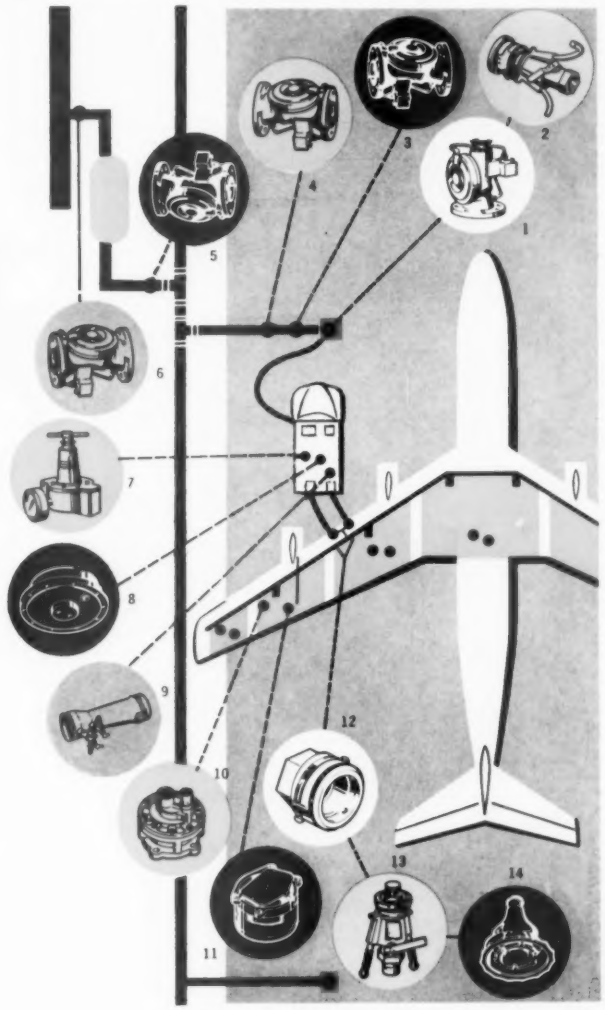

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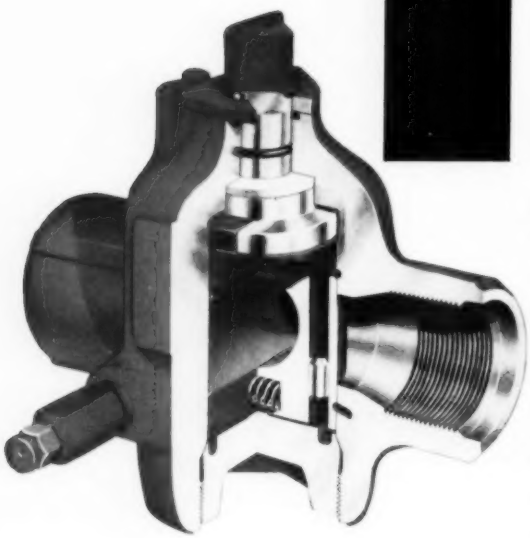

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59-200

Slim Holes Used as Exploratory Tool

An exploration program involving slim-hole drilling in the Lloydminster "black oil" region of Alberta and Saskatchewan is realizing plump savings for Canadian Husky Oil, Ltd.

W. E. Powell, Canadian Husky's vice-president in charge of exploration, says the use of slim-hole methods "has meant the difference between making money and not making money" at Lloydminster, one of the oldest big fields in Western Canada.

Lloydminster, discovered in 1939, actually is made up of some 26 separate reservoirs, the largest of which is about 7 sq. mi. These pools together form an irregularly shaped area, about 25 mi. wide at the north, and 10 mi. wide at the south. Length is about 40 mi.

Development has come slowly at Lloydminster because of cold winters (sometimes minus 40 F), the deep mud, salt water, low-production wells, and viscous, low-gravity crude. Markets, too, were bad.

To overcome the problem of drilling into channels with no producing sands, or winding up with wells of questionable value because of silt, Canadian Husky hit upon slim holes as a cheap answer to exploratory drilling.

Previously, slim-hole drilling has been viewed in Western Canada and other regions as primarily an economic means of developing marginal areas.

The company found that economics ruled out a detailed continuous seismic program in the Lloydminster area, and that even with such a program, it could not be sure in all cases where the sands ended and the shales began.

In noting that both the size of the area and the long payout on Lloydminster wells ruled out a costly exploration program, Powell told PETROLEUM WEEK: "But we couldn't, and we can't, afford to drill costly dry holes, either."

Because of its slim-hole exploratory program, the company believes there will be few if any dry holes, poor wells, or even medium wells in development of reservoirs in the Lloydminster area. (Though emphasis has been placed on slim-hole tests, exploratory work in the region has not been limited by Husky to that method alone.)

The slim-hole tests themselves are always abandoned, but they've made a reasonably sure thing of development drilling.

Since about 20% of ordinary development drilling results in dry holes, and others often are of such nature that it's a costly mistake to set casing in an effort to produce them, it's quickly apparent why Canadian Husky's method pays off.

For example, a 100-well program on 40-acre spacing could cost $200,000 in dry holes. The cost would be considerably higher in cases where marginal wells are completed, since many of these never pay off.

Slim-hole drilling costs run about one-third the cost of regular-size holes in the Lloydminster area, where the shallow drilling (1,800-1,900 ft.) presents no particular problems.

The 4¾-in. test holes are drilled with a standard seismic shot-hole rig to about 1,900 ft., through the producing zones, at a cost of about $3,500-$3,600.

A standard (9-in.) hole drilled to comparable depth costs from $8,000 to $12,000.

Drilling contractor for the Canadian Husky program is Seaman Engineering & Drilling Co., of Calgary. Seaman is using a truck-mounted Mayhew 2000 rotary drill. This rig has a 42-ft. mast of 75,000 lb. capacity. A 4½ by 6-ft. Gardner-Denver deck-mounted pump is driven by the truck motor.

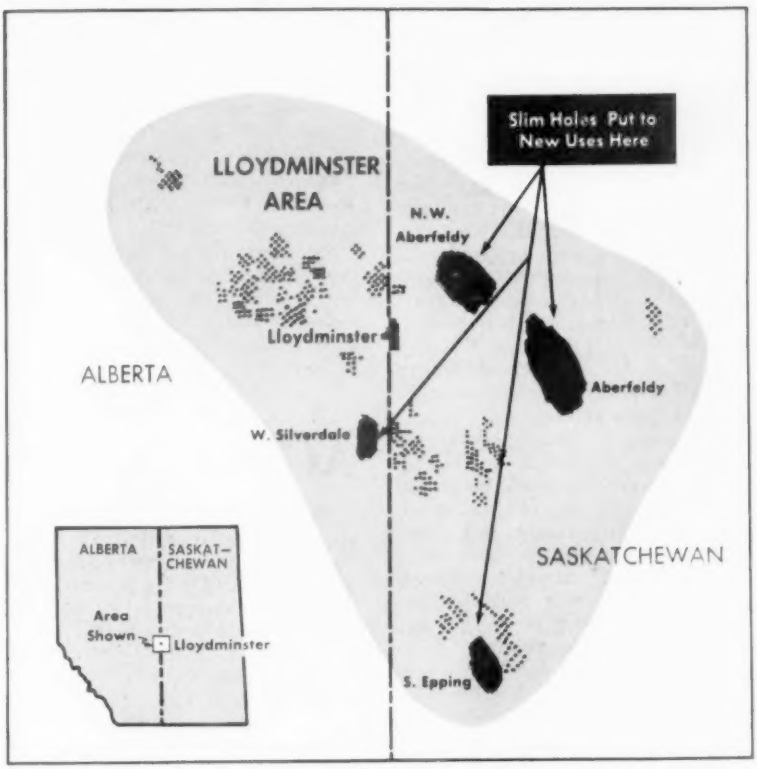
In addition to savings resulting from elimination of high dry-hole costs and completion of poor wells, there are other important savings.

Sites for the slim holes cost less. For example, deals were made with farmers for drilling on their land. The surface lease in those cases cost $100, compared with $600-$1,000 for full-size wells.

No road construction has been necessary, because of the portable, lightweight equipment used.

Total cost of the slim hole, including surface lease, surveying, drilling, plugging, abandonment, and clean-up, runs about $1.20 per ft., excluding the cost of electric logging. Ordinarily, the company would be paying $2.50 per ft. for drilling alone.

In the case of the slim hole, there is very little surface damage, because



of the small amount of equipment used and the small mud pit required. No more than two trips are required in cleaning up the rig location.

The entire slim-hole operation takes from three to four days, as compared with six or seven days for a regular hole.

Too, Canadian Husky brings in choice wells at its leisure, when market demand warrants.

For instance, an upsurge in demand for products from the low-gravity (10-18), high-viscosity Lloydminster crude would not force the company into the uncertainties of a crash program of drilling, because good pools have already been outlined by a scattering of cheap slim holes. The company would know just where to drill.

This type of preparation makes it possible to fill in the pools with a selected number of development wells whenever they are needed.

The company also acquires a long-term picture of reserves, but ties up far less money than would be needed for effective sizing-up of reserves.

For example, less money will be tied up in protection acreage. In the past, the company has carried large amounts of protection acreage, at high costs. Canadian Husky is trying to alter that by eliminating "ram pasture."

At one time, Canadian Husky held up to 350,000 acres under lease. This has since been cut by more than 200,000 acres, significantly reducing total annual rentals (at $1 per acre).

The slim-hole technique as an exploration tool is particularly suited to the Lloydminster area because of special problems found there.

These problems include the size of the area, its geology, and well payouts.

Shale-filled channels separate the Lloydminster "field" into individual pools. Some adroit leap-frogging is required, therefore, to bypass the channels at the least possible expense in order to confine tests to the producing areas.

The heavy oil is found in loose, unconsolidated sands of Lower Cretaceous age. The Sparky sand is the main producing zone, at average depths of 1,800-1,900 ft.

In addition, small amounts of oil come from the Colony, GP, and Lloydminster sands, at approximately the same depths.

Average effective zone thickness of the Sparky sands is as much as 60 ft. in some places, only 15 ft. in others.

By means of the slim-hole program, Canadian Husky has found four new pools in the still-developing Lloydminster area.

The pools are Alberfeldy, Northwest Alberfeldy, South Epping, and West Silverdale (map, page 29). The company estimates it has discovered around 4-million bbl. of oil by the slim-hole program, at costs far less than would have been incurred by usual methods.

There are 606 wells capable of producing in the various pools that make up Lloydminster proper. Of these, Canadian Husky has 235, making it the major operator—despite the fact that it is a relative newcomer to the area, having drilled its first Lloydminster well in 1946.

Good wells at Lloydminster are capable of producing up to 100 b/d, but maximum rate of production allowed by both Alberta and Saskatchewan is about 35 b/d per well, on the average.

Canadian Husky began its slim-hole program in early 1957. Since then, a total of 38 such holes have been drilled.

Twelve exploration slim holes were drilled in 1957, and another 22 were drilled last year.

The company expects to drill six or seven more this summer. Four development wells also are planned.

The company believes its slim-hole technique can be used in other areas where the only answer to exploratory programs is drilling.

The area south of Coleville, in the Kindersley area of Saskatchewan, is considered one such possibility.

"There are several areas in Alberta and Saskatchewan where this method could be employed, since seismic exploration has proved to be undependable in those cases," says Powell.

ACT Keeps Growing in West Texas

The growth of lease automatic custody transfer systems in West Texas will get another boost this month if Shell Oil Co.'s requests for seven more systems in the Midland area are approved, as expected.

One of the systems for which Shell will seek Texas Railroad Commission approval is fully automatic from wellhead to pipeline. It will be set up in the Wasson field, near Denver City, Yoakum County, and will raise the total number of ACT leases in this field to 18.

The other proposed projects will be partially automatic. Three will be installed on Andrews County leases and three on Borden and Garza County leases.

Shell's Midland area already has almost 400 wells incorporated into either fully or partially automatic production facilities, reflecting the rapid growth of lease automation.

The area's first lease automation work began in the Wasson field in 1951. There were 12 automatic tank batteries in operation there by 1953, 19 by the end of 1955, 24 by the end of 1956, and 28 batteries (on 29 leases) by mid-1958.

The first automatic custody transfer trial at Wasson began in March, 1957, with four tank batteries, and continued until the Railroad Commission approved the operation in April, 1958. By July, 1958, approval had been granted for ACT operation of another 12 batteries in Wasson and, by September, 1958, for several other leases. Altogether, the Wasson systems include 290 wells.

One of Shell's experiments—a microwave-telemetering system between Wasson field and Midland—no longer is in operation, due to relaxation of rules governing pipeline requirements.

This system was designed to feed daily production information into Midland for data-processing purposes.

It actually was developed to the point where information from wells on a Wasson lease was telemetered by microwave into the Denver City production office and stored there until a signal for it was sent from Midland.

The information then was teletyped into Midland.

The communications system was taken out of operation mainly because the Railroad Commission rulings and the relaxation of pipeline requirements had made unnecessary the continuous checking of such factors as crude quality at the wellhead.

Shell felt these changes eliminated the need for the system, and it was, therefore, an unnecessary expense.

The system proved itself, however, before it was taken out of operation.

From here on, Shell is expected to rely on outside contractors to design and build future lease ACT projects in the area.

Engineers who have designed the systems and developed them into working installations feel that Shell has about reached the point where it will quit doing the work itself.

"We'll probably draw up the specifications, and then send out for bids on complete package systems," says a Shell engineer.

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New Lime Play in East Texas

The push to develop a new Glenrose lime pay area recently established in the southeast Harrison County (Tex.) portion of the Bethany area is moving into high gear.

Increased activity in the producing area, which is located some 2 to 4 mi. northeast of Blocker townsite, results from the establishment of the fact that the 4,400-ft. pay section is worthy of exploitation along a possible north-south range of 4 mi.

Nearest comparable production is 12 mi. southeast, in the Panola County portion of Bethany field.

At last count, six flowing wells had been completed, with daily gauges ranging from 115 bbl. to 369 bbl.

Three more tests are in the process of being completed from the Glenrose (lower Cretaceous), and more than a dozen locations are on the active list.

Positive developments include a north extension operation and a south spread to point toward a linking of what were first outlined as two separate discovery areas.

Barnwell Drilling Co., Shreveport, is the major leaseholder in the area, and is currently the most active in the development, with ten locations. It was the first to establish Glenrose production in the area, with a mid-December completion.

The discovery well—on L. Manning land, in the William Williams survey, 2 mi. northeast of Blocker—gauged 120 b/d through a ¼-in. choke and perforations at 4,287-93 ft. in the Mooringsport section of the Glenrose.

Just recently, Barnwell confirmed this strike with the completion of No. 1 McGilvery-Fultz, William Williams survey, which flowed 201 b/d of 43-gravity oil through ⅛-in. choke and perforations at 4,327-33 ft.

On the heels of the Barnwell discovery, Javelin Oil Co. and Lomac Drilling Co., also of Shreveport, found pay lower in the Glenrose some 3 mi. north, on I. C. Underwood land in the M. S. Ussery survey.

This find, an old failure reworked, was completed for 166 b/d through 10/64-in. choke and perforations at 4,467-77 ft.

Javelin and Lomac subsequently got the area's best well to date at No. 1-A Underwood, 1,320 ft. south of the discovery, which flowed 369 b/d through 20/64-in. choke and perforations at 4,466-76 ft.

Javelin and Lomac gave the north sector its north-side spread with a completion on A. R. Womack property in Sarah Shoto survey. The well flowed 115 b/d through 20/64-in. choke and perforations at 4,483-90 ft.

Presently, the activity extends in a north-south line from the southern part of the Shoto survey across the Ussery survey, and down to the center of the Williams survey on the south.

In the southern part of the area, crude averages about 43-gravity, with a gas-oil ratio of about 983 to 1.

In the northern sector, the crude averages around 42-gravity, and the gas-oil ratio ranges only up to 84 to 1.

Industry Ponders

The government's spelling-out of methods, costs, and expected results of a nuclear blast in shale oil has touched off wide interest in the petroleum industry.

Details of the proposed project were explained in detail at the recent meeting of the North Texas Oil & Gas Assn. by Carl C. Anderson, chief petroleum engineer of the Bureau of Mines.

Anderson's talk is viewed by some industry quarters as at least a partial answer to demands for more information on such an experimental project. These demands followed the two-day meeting between industry and governmental representatives in Dallas in early January. That meeting was called by federal agencies seeking petroleum and chemical industry cooperation in nuclear programs (PW—Jan.9'59, p14).

Anderson told the North Texas meeting that it might be possible to produce shale oil through nuclear blasting and a follow-up in situ combustion process at a price of around $2 to $3 per bbl. (PW—Mar.27'59, p15).

Of particular interest to oil men is the 72-in.-diameter hole that would be required for the test. The cost to drill it: $200-$400 per ft. The yield: about 47% recovery.

Anderson said the 72-in. hole was needed "to allow for guniting or casing the hole." He said no one has ever drilled such a hole as deep as would be needed in this case, so the per-foot cost estimate has deliberately been set high.

He added that the 47% recovery estimate is based on 14 underground tests conducted by the Germans.

"The 47% recovery will give an average daily production of 3,000 bbl., or 11-million bbl. in ten years," Anderson continued.

"Not knowing the configuration of crushing and fracturing in oil shale, the configuration of the 35-million-ton project is assumed to be 1,000 ft. in diameter and 650 ft. in vertical dimension."

The device needed for the experimental program would be 300 kilotons or larger, costing about $1-million. (A kiloton is equivalent in power to 1,000 tons of TNT.)

"A large yield device, 300 kilotons or larger, can be selected to shatter 35-million tons of oil shale, which might assay 28 gal. per ton," Anderson said.

"Experience in volcanic tuff indicates that 3,000 ft. of cover is re-

Nuclear Program

quired for a 300-kiloton explosion. Having no experience in oil shale, we have used the 3,000-ft. figure."

The well pattern would total some 30 to 40 wells, including both air-injectors and producers.

"There are no rock fracturing and permeability data available for oil shale in the condition it will be found after the detonation," Anderson said. "This is essential for the planning of an efficient well pattern for the in-situ combustion process.

"However, lacking this information, the study proceeded by assuming the well pattern to consist of 13 air-injection wells on approximately 240-ft. centers on the outer circumference, and 13 producing wells 240 ft. inside the circle of injection wells.

"If 13 wells are allowed for exploration and redrilling, the total is 40.

"Experience may show that 30 wells may be enough, and the low estimate (of total cost) is based on 30 wells. The cost of completed wells is estimated at $10 per ft."

Initial production wells would be changed to injection wells for completion of the program. Air-to-oil ratio is estimated at 8,700 cu. ft. per bbl.

"The procedure is to produce the outer area, or annulus, first. Then the inner wells will be converted to air-injection wells, and the center well will be the producing well until the project is completed," Anderson observed.

"The amount of section opened in the air-injection wells at a given time will be determined from the air velocity required for optimum restoring and oil recovery."

The actual required air pressure is unknown, but the Bureau figures it may be as low as 300 psi. or as high as 600 psi. This puts compressor capacity at from 6,600 hp. to 8,400 hp.

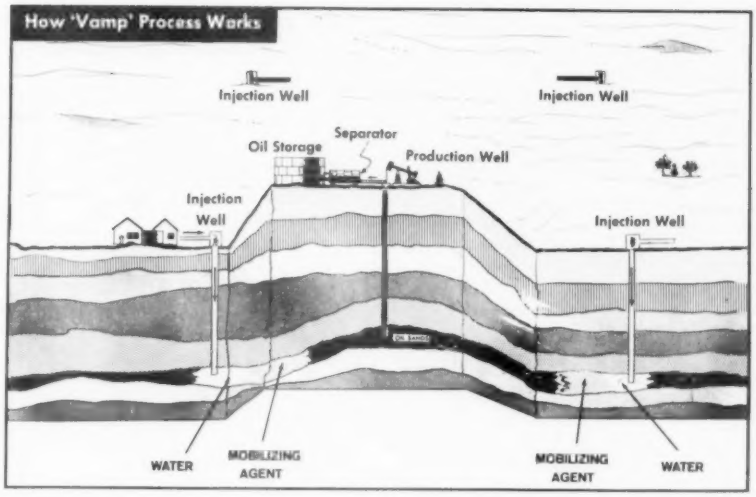
Compressor operation, maintenance, and fuel costs would run about $60 per hp. per year.

The government estimates a lifting cost of 50¢ a bbl.

Tank batteries, heaters, pumping equipment, and pipelines would run about $250,000, Anderson estimated, adding:

"Well maintenance probably will be costly, but it is thought this figure (50¢ per bbl.) will be adequate."

Anderson also said the first test "conceivably might be in a reservoir, either newly-discovered or old, that has a pay section of some 100-200 ft. and a high saturation of viscous crude."



MOBILIZING AGENT proves successful in pilot flood of heavy Texas crude. This . . .

Chemical Improves Flood Results

A new twist has been added to waterflooding of heavy crude: a "mobilizing" agent that is said to increase the flood yield significantly.

Paul N. Belmont, president of Hydrocarbon Chemicals, Inc., developers of the new process, says the agent permits economic production of crude that has resisted conventional waterfloods.

Belmont says pools of low-gravity crude cannot be waterflooded successfully because the heavy crude resists the water pressure to the extent that the water often breaks through the crude, resulting in production of water instead of crude.

The new recovery method uses a chemical fluid to break down the resistance of the high-viscosity crude, making it yield to the pushing force of the water.

The Hydrocarbon Co. method—called VAMP, for Variable Action Mobility Process—uses the mobilizing agent as an advance treatment in the flooding. The agent is closely followed by water injected under heavy pressure.

"Since the crude's viscosity, in effect, is lowered by the mobilizing agent," Belmont says, "the sweep efficiency increases."

While the agent is not miscible with the heavy crude, as butane is, for example, it does mix to some extent at the contact front.

As a whole, however, the agent serves as a control buffer, since its mobility is different from the heavy crude and the water.

None of the mobilizing agent is produced until the well is almost depleted, says Belmont. He adds that since a patent is pending for the process, he is not at liberty to disclose the actual chemical composition of the mobilizing agent.

He says the process will be made available to the industry, however, possibly through license agreements.

One big advantage claimed for the new process: It results in increased production almost immediately.

With normal waterflooding techniques, Belmont says, recovery sometimes does not take place for as much as 18 months, after sufficient pressure has been built up to start noticeable reaction.

The first field test—in Mildred field, Navarro County, Tex.—produced enough crude in its first four months of operation to pay for the entire installation.

Belmont says that production from the pilot well increased from 1 b/d when it was completed last July to 27 b/d by December.

"That is a far greater increase than we have been able to achieve with conventional waterflooding," he says.

To back up his statement that the new process is superior to conventional flooding methods, Belmont adds:

"Our engineers estimated that Mildred field would yield about 3,000 bbl. per acre over a 20-year span by waterflooding. In the past nine months, we already have produced 2,600 bbl. per acre by using our new method."

Belmont says there are an estimated 20,000 bbl. of oil per acre in Mildred field.

At the still-continuing production

rate of 27 b/d, the well pays for its entire cost every three months, he says.

He points out, however, that a determining factor in the quick payoff is the shallow depth—950 ft.—of the Nacatoch (upper Cretaceous), a bentonitic sand, in Mildred field.

In the past, the bentonite would swell because of the water, as is usual, thereby preventing large-scale water injection.

The agent, however, reacts in some way with the bentonitic sand, and it has been found that more water can be injected in areas where the agent is used, Belmont says.

In Mildred field, the five-spot injection pattern is on two acres. For production from deeper formations, the spacing would have to be greater, he adds.

Present plans call for the drilling of 60 wells for the expansion of the process in Mildred field.

Belmont reports that 20 of the planned 60 wells have already been completed. There is a potential of 600 wells on the 1,800 acres held by Hydrocarbon in Mildred field, he says.

What's New / IN EXPLORATION, DRILLING, PRODUCTION

The Texas Railroad Commission has denied Sun Oil Co.'s request to install and test a tool that will produce from two or more zones through one tubing string (PW—Mar.27'59, p29).

The commission reportedly denied the application on the ground that it is against regulations to produce in this manner.

An industry observer says Sun's only recourse is to try to use the tool in other states, where such restrictions do not exist, or to go back to the commission to try for a reversal of the ruling.

According to Sun, use of the tool permits effective control of production from the various zones, plus several other benefits.

•

Pressure for upward revision in allowables for offshore Louisiana production continues to mount.

The latest move on this front came from H. C. Teasdel, president of the California Co., at last week's meeting of API's Division of Production, Southern District, in New Orleans.

Teasdel recommended a wider-spacing incentive plan and restoration of the 1953 ratio between onshore and offshore allowables.

"It is very clear that operators will have to have a sharp upward revision in allowables if development of what may be this country's last great oil frontier is to be resumed," he said.

In 1953, he continued, an offshore well of 8,000-9,000 ft. had a 365 b/d allowable, compared with 215 b/d for a comparable onshore well. As of today, he said, the spread has narrowed: 141 b/d for the offshore well vs. 81 b/d for its onshore counterpart.

"With the 35-gravity crude price at $2.65 in 1953, and a state allowable of 465 b/d, the offshore well grossed $1,232 per day," Teasdel said. "The same well today can earn but $471 per day—36% of the former revenue."

•

The Alberta government is being lenient with operators regarding fulfillment of drilling commitments. Reason: the squeeze on producers due to lack of markets.

Alberta Premier E. C. Manning, who also is Minister of Mines & Minerals, says some drilling commitments have not been strictly enforced because the oil market has been considerably below potential production.

A report by Manning shows there are 20,318,231 acres of oil and gas leases on which the government does not know whether drilling commitments have been met.

The report points out, however, that if conditions changed, the government would, if necessary, send out

How Drilling Fills Community's Cash Box

What is it worth to a community to have a drilling rig and crew move in as neighbors? The answer: a half-million dollars, says Magnolia Petroleum Co.

Magnolia reached this conclusion following a study of one of the company drilling rigs near Ft. Stockton, a town of 7,000 in Pecos County, Tex.

The company says it will spend well over $1-million in drilling its projected 20,500-ft. wildcat 22 mi. northeast of the town.

According to Magnolia, here's how Ft. Stockton will benefit from the drilling:

- The 20-man drilling crew will bring into the town a monthly payroll of $13,000. The payroll will exceed $200,000 before the test is finished.
- Of the 20 families, 14 are renting living quarters in the town. Six brought in house trailers.
- At least 15 jobs will be created in the town as a result of the crew's payroll.
- Magnolia will pay several hundred dollars in taxes to the county and schools as property taxes on the rig, and the land under lease nearby.
- Some drilling supplies will be bought in Ft. Stockton.
- Some 60 truck drivers bringing casing and tubing from Houston will spend money in the town.
- The 20-man crew has 29 children, 21 of them in school. Nine of the wives are active in the PTA, and three of the men belong to local lodges. Most of the families belong to churches.

In addition, there are other monetary benefits:

- Magnolia has paid landowners in the area of the test some $225,000 for lease bonuses and rentals in the past eight years.
- Another $200,000 was brought into the county by Magnolia geophysical crews.

Magnolia says the wildcat is not typical, because it's deeper and more expensive than most. "But it does do a good job of illustrating how much a drilling rig means to a community when it moves in and starts drilling for oil."

notices calling for development of holdings.

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The Soviets claim that they have drilled a 14,432-ft. hole with an electric drill.

Tass, the Soviet news agency also reports that 3,716.2 ft. were drilled in 97 hours, setting a record for this type of drill.

Tass said the Azerbaijan Oil Trust, which set the record, planned to triple its electric drilling activities this year.

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The next mineral lease sale of Louisiana state-owned lands and water bottoms has been tentatively scheduled for July 16.

William G. Helis, chairman of the State Mineral Board, says the July lease sale will allow oil companies time to examine lands purchased at the Feb. 19 sale, as well as those to be offered in July.

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The use of salt-water disposal pits will not be permitted after June 1 in four fields in Wharton County, Tex.

The Texas Railroad Commission, in clarifying an original order made Feb. 9, said that inspection wells will be required for disposal of salt water from all wells in Hutchins South, Hutchins Southwest (5,800 ft.), Hutchins Kubela (Gilcrease sand, Kubela sand, and Hutchins sand), and Pickett Ridge fields.

The commission said the original order gave the false impression that disposal pits under some circumstances might be used.

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The 65,000-acre 1,000 Lakes Mountain unit, in Wayne and Emery Counties, Utah, has been approved by the U. S. Geological Survey.

The Texas Co., operator of the unit, will drill a wildcat in section 11-28s-4e, Wayne County, which will go to about 6,900 ft. to test a Mississippian formation embayment that reaches westward from the central portion of the Paradox Basin.

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Engineering

An electrically operated wireline tool that cleans out wells by firing a combustible or explosive charge into the formation has been developed by Haskell M. Greene Co., Ltd., Whittier, Calif.

The charge produces a large volume of very-high-temperature, pressurized gases, which expand into the formation, cleaning waxes and other accumulations out of the pores of the formation and the well liner, if one is present, according to the company. The tool fires three charges, the first of which is relatively small. This minimizes shock that could result if the propellant were too powerful.

•

Drilling Highlights

North Texas—Standard Oil Co. of Texas No. 3-2 Mary I. McAdams, W. B. Chiles survey, Grayson County, was completed as a Basal Oil Creek sand gas-distillate discovery with a high distillate yield. The wildcat gauged 75-million cf/d of gas, with 250 bbl. of 51-gravity distillate per million, through perforations at 12,813-55 ft. and 12,865-84 ft. This is the deepest pay for New-Mag field.

California—Richfield Oil Corp. (L.A.) No. 83-9 KCL H, section 9-11n-21w, Kern County, flowed at the rate of 1,100 b/d of 29.9-gravity oil and 280,000 cf/d of gas through 32/64-in. choke and perforations at 11,590-640 ft. and 12,010-50 ft. in the Reef Ridge sand, and 1,681 b/d of 30.2-gravity oil and 461,000 cf/d of gas through 32/64-in. choke and perforations at 12,702-838 ft. in the Stevens, a deeper pool discovery for the 8-month-old San Emido Nose field.

East Texas—Sam Sklar and Sunray Mid-Continent Oil Corp. No. 1 O. W. Lemmon, Arthur Robertson survey, Cass County, was completed for 190 b/d of 42.4-gravity oil through 20/64-in. choke and perforations at 6,162-72 ft. in an anydrite stringer.

New Mexico—Hill & Meeker No. 1-36 State, section 36-26s-32e, Lea County, flowed 192 b/d of 41.2-gravity oil through 14/64-in. choke and perforations at 4,609-19 ft. in the Delaware. The discovery is a little more than 2 mi. northeast of El Mar Delaware pool, Loving County, Tex.

South Louisiana—Continental Oil Co. et al No. 1 Clemile Savoy, section 43-11s-4e, Vermilion Parish, flowed 8-million cf/d of gas and 648 b/d of 46.4-gravity distillate through 16/64-in. choke and perforations at 14,675-95. The discovery is more than a mile southeast of Maurice field.

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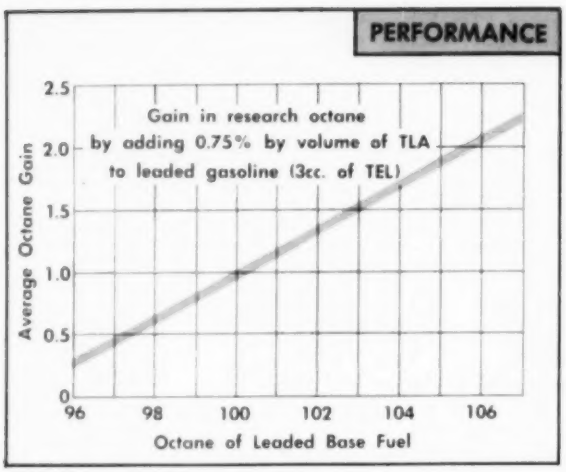

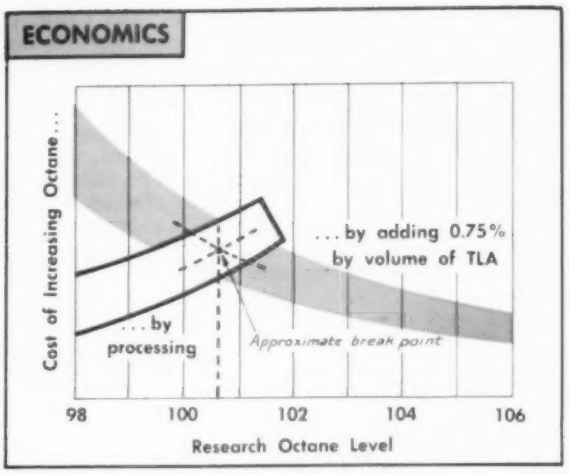

Texaco 'TLA' Additive Boosts Octanes

A new chemical additive, tertiary butyl acetate, called TLA, will effectively increase octane ratings of premium gasolines, according to its developer, The Texas Co. (PW—Mar.27'59,p10).

Tertiary butyl acetate was selected by Texaco, out of over 700 compounds tested, as the most commercially useful "lead appreciator" for use in premium fuels.

Alone, it is not a significant antiknock agent. But used along with tetraethyl lead, it boosts the octane rating of the fuel—hence the term "lead appreciator."

This is "the most important development in the antiknock additive field since the introduction of tetraethyl lead 36 years ago," according to F. H. Holmes, vice-president in charge of Texaco's research and technical department. He predicts that TLA (which stands for Texaco Lead Appreciator) will come into widespread use as gasoline octane requirements increase.

The higher the octane number, the greater the benefit from using TLA (left chart, above).

At 100 leaded research octane, addition of TLA increases the octane rating an average of one number; at 106 leaded research octane, the increase is 2 to 2½ numbers, according to Texaco.

The company also has tested TLA for leaded research octanes of 108 and above, and, it says, has yet to find the octane level at which the increasing benefit of TLA starts to level off.

The effectiveness of tertiary butyl acetate is not affected by the composition of the gasoline. It also increases as the lead content of the fuel increases.

If only 1 cc. of TEL is used, then only one-third as much TLA can be used effectively, and the octane-number appreciation is only about one-third that obtained from a full 3 cc. of TEL with 0.75% by volume of TLA.

Leaded motor and road octane numbers also are appreciated by the addition of TLA, to an extent roughly proportional to the appreciation in leaded research octane.

The physical properties of TLA make it particularly suitable for use as a gasoline additive, Texaco says.

Tertiary butyl acetate is an organic ester. It is water-white and liquid, with a boiling point of 204.8F (in the middle of the gasoline boiling range), and a freezing point of —75F.

It is completely miscible in gasoline between its freezing and boiling points. It has a very slight miscibility in water—only 0.62% at 80F—which, according to Texaco, is satisfactory for a gasoline additive. It is noncorrosive, and its toxicity is no higher than that of the gasoline with which it is blended.

TLA can be added to gasoline with ordinary blending procedures. There is no tendency for separation at low temperatures. However, in concentrated form, it is unstable when exposed to air. Once it is blended with the gasoline, there are no stability problems associated with storage or handling.

Texaco anticipates that the new additive will be used in 100-plus-octane premium fuels only, because of its negligible effect at octanes below 100.

At 96 leaded research octane, the octane-number appreciation by use of the full amount of TLA is only about 0.25 numbers. At 98 leaded research octane, the appreciation is up to about 0.6 numbers. It is only when the leaded research octane of the fuel is around 100 or higher that the effect of TLA becomes significant, according to Holmes.

But as a way to squeeze additional premium octanes out of a refinery already at its processing and TEL limits, Texaco says, TLA can be cheaper than installing new processing equipment (right chart, above).

Somewhere between 99.3 and 101.7 leaded research octane, the economics for TLA and for new processing equipment are about equal. But as the octanes rise above this the economics of using TLA instead of installing new processing equipment become increasingly attractive.

An exact "breakeven point" between TLA and new processing equipment cannot be set, for two reasons. TLA is not yet a commercial item, so its manufacturing costs are not known precisely. And, the amount, type, and cost of processing equipment needed to make additional octanes varies widely between refineries, depending on existing facilities, type of crude, method with which equipment is written off, and many other factors.

Texaco itself will not use the new additive until some future date, but it has both road- and market-tested gasoline containing it. All Texaco re-

A slight case of poison

A sudden mysterious "sickness" can disable a petroleum refinery, much as it does a human. Which is just what happened at this refinery.

Universal service engineers were summoned in a hurry. Samples of feedstock and catalyst were rushed to UOP laboratories, where petroleum chemists set to work. Here, the usual analyses found nothing, but specially developed analytical procedures determined the cause of the trouble—arsenic in the feedstock was poisoning the platinum-containing catalyst.

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Many refining ideas are born in Universal's laboratories. Others, such as this, grow from problems encountered in commercial operations. But at UOP we believe that "research is where you find it." No matter where a research idea may originate, if it advances the art of petroleum technology it deserves to be carried to a successful conclusion—and to be made available to refiners everywhere. *Trademark

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HALF CENTURY OF DRILLING RESEARCH HAD ITS BEGINNING IN A UNIQUE LABORATORY

THE LIGHT that shone from the door of the first Hughes research laboratory was dim indeed compared with the blaze of light that shines today, a half century later, from the block-long Research and Engineering Laboratory in Houston, Texas.

That first laboratory was housed in a small wooden derrick, erected alongside the company's first plant. Corrugated iron enclosed the lower part of the derrick. Ivy and moon flowers covered most of the structure. The machine set up in the laboratory to simulate rotary drilling was steam-driven. The holes it drilled in blocks of rock made possible the first analysis of the performance of rock bits.

Research started 50 years ago has continued without interruption and has grown from year to year. For many years, the only drilling research being done was that carried on by Hughes. And in those early years of rotary drilling, oil companies frequently used the Hughes research laboratories for metallurgical, chemical and physical analysis of materials.

The present two-story Hughes Research and Engineering Laboratory building, built in 1952 and further enlarged in 1958, houses the largest drilling laboratory in the world. But the policy that guides its operations is the same as that set forth at the start of Hughes research: "never to be satisfied . . . and to continue to anticipate the ever-changing requirements of the drilling industry."

BIRTHPLACE OF DRILLING RESEARCH

In the painting at the left, the artist, in this night scene, has attempted to capture something of the loneliness and mystery of the work carried on in the first Hughes laboratory. Enlarged prints in full color are available for the asking. Write: Advertising Department, Hughes Tool Company, P. O. Box 2539, Houston, Texas.

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fineries today have processing equipment sufficient to meet current octane needs even without using the full complement of lead. Thus, the company has no immediate need for the benefits of TLA.

But, according to Holmes, "We'll be using it, though not right now. The individual company refineries will start using it at different times, when they need it."

Road-testing of gasoline with TLA was conducted under the most severe conditions of hot and cold climate, for over 1-million mi. In addition, over 1.5-million gal. of this gasoline were market-tested "without a single customer complaint," Holmes says.

The effects of TLA on engine performance and fuel consumption were also tested, with no deleterious effects noted.

Tests with fuels containing phosphorous-type additives showed no diminution of the octane-appreciation properties of TLA.

There was no noticeable change in engine deposits, compression-ring weight loss, or dilution and viscosity of lubricating oil, at either high- or low-temperature operation.

Induction system deposits, measured with a Lauson H-2 engine, operating under moderate load and moderate speed, showed no significant difference between fuels with and without TLA, though the TLA fuel did give slightly smaller amounts of deposits.

In other tests conducted by Texaco, it was determined that the use of TLA had no measurable effect on exhaust-valve life, surface ignition, or spark-plug fouling. Analysis of exhaust-gas compositions from cars using TLA-containing fuels showed no differences from fuels not containing TLA.

Octane appreciation is improved when TLA is used in fuels that also contain isopropyl alcohol as a deicing additive.

When 0.75% by volume of TLA is added to leaded gasoline containing 0.5% by volume of isopropyl alcohol, the research octane is increased by about 0.5 numbers more than the same fuel not containing the alcohol.

However, the presence of the isopropyl alcohol has no effect on the motor octane rating. From this, Texaco estimates that the improvement in road octane rating would be about 0.2 to 0.3 octane numbers.

Texaco does not yet know when, where, or how the new additive will be made, according to Holmes.

Tertiary butyl acetate is readily manufactured from acetic acid and isobutylene. But it has never been made commercially to date. Semicommercial amounts have been made without incident or difficulty, however, Texaco says.

Texaco discussed TLA with the major car makers and with the two manufacturers of TEL (Ethyl Corp. and Du Pont) a few days before announcing TLA to the public. But, though interest has been shown in TLA, it is too early to announce any definite plans, according to Holmes.

TLA will be made available by Texaco through appropriate licensing procedures, for use by the entire petroleum industry. But Holmes declines to say whether Texaco will manufacture it—even though he feels that Texaco's patent applications might give the company a proprietary position in the making of TLA as well as in its use as an additive.

Hydrogen Can Gasify Tar Sands

It now appears technically possible to use "hydrogen treating" to gasify the vast hydrocarbon deposits in the Athabasca tar sands.

That's what researchers at the Institute of Gas Technology, Chicago, have concluded, after conducting hydrogen reaction tests with typical Athabasca tar sands.

The institute's conclusions add more fuel to the discussion of what should be done to make the greatest use of the vast amount of energy locked in the Athabasca deposits and other tar-sand deposits around the world.

Until recently, emphasis had been placed on developing processes to extract crude from the sands. Now, experiments by the institute and others (PW—Jan.30'59,p27) show that gasification may be a better solution.

Recent hydrogasification tests on tar sands gave high yields of both high-heating-value natural gas and ethane.

Institute researchers recently described their gasification work this way to PETROLEUM WEEK:

"An Athabasca tar sand was reacted with hydrogen at temperatures up to 1,300F, and pressure of about 2,000 psig.

"Reactivity of the organic matter in the sand was unusually high for a material so deficient in hydrogen (carbon-hydrogen ratio of 8.17 to 1).

"Conversions to high-heating-value gas (over 900 Btu. per cu. ft.) were as high as 95% of the organic carbon plus hydrogen.

"By adjustment of conditions, high ethane yields (about 40% of the organic carbon plus hydrogen) could also be obtained."

But the researchers don't expect commercial use of this technique any time in the near future.

"Our work," one institute representative says, "indicates that these vast deposits could be readily converted to high-heating-value fuel gas, or to crude petrochemical ethane, by the institute's hydrogasification process.

"However, the inaccessibility of the sands, and the continuing availability of high-quality petroleum in the same area, suggest no application in the very near future."

Still, the spokesman points out, the tests assure future supplies of natural gas and ethane should conventional reserves run low.

The institute plans to continue its work on hydrogasification of tar sands.

Gulf Oil Plans New Oxo Plant

Gulf Oil Corp. will build a new, multimillion-dollar plant for the production of Oxo alcohols at its Philadelphia (Pa.) refinery.

The new plant will quadruple the company's present capacity to produce Oxo alcohols. Engineering work on the plant has been completed, and construction is scheduled to start this summer. Initial operations are expected to begin in the summer of 1960.

This will be the first major petrochemical installation at Gulf's Philadelphia refinery. The company's current petrochemical facilities are located at its Port Arthur (Tex.) refinery, where Gulf has produced Oxo chemicals since 1953. The Philadelphia site was chosen because of its favorable situation with regard to markets.

The primary products from the new Oxo plant will be iso-octyl and decyl alcohols. But the plant also will be able to produce a broader range of alcohols, as well as other Oxo products.

Iso-octyl and decyl alcohols are used in large quantities to make plasticizers for polyvinyl chloride resins.

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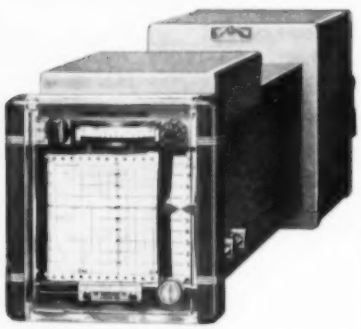

The past year has been revolutionary. Electronic process control has won universal acclaim on every consideration: simplified installation . . . reduced maintenance . . . and, most important, better control performance. The evidence was so conclusive that other systems were totally ruled out on many new installations.

Swartwout pioneered electronic process control so Swartwout had a definite advantage: it was free to select the ideal circuit. AC in the measuring circuit has given unmatched simplicity and reliability extending the lengths and heights of the processing plant. DC is rightly used for the actuator. Experience has borne out the wisdom of this selection.

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S-A, 1940

What's New / IN PROCESSING

Gulf Oil Corp. has opened a new wing on its Harmarville (Pa.) research headquarters to house its new IBM 704 computer.

The new Computer Wing was specially designed to utilize large electronic computers and related equipment. It also includes offices, conference rooms, and training rooms. Two 50-ton air-conditioning units are part of its equipment, as well as special air-conditioned storage vaults for storage of magnetic tapes.

Uses for the new computer will include a wide range of research problems of a scientific, engineering, or operational nature. They cover all phases of the company's activities, such as studies in geology and geophysics to improve oil-finding techniques, in better ways of producing and transporting oil, in refining, in sales, and in general corporate matters involving finances and strategy.

•

A new grease that will lubricate supersonic jet aircraft at temperatures from —65F to higher than 400F is now available industrially from Standard Oil Co. (Ind.)

The grease is a synthetic, compounded with aryl substituted urea as a thickener in a special nonpetroleum lubricating fluid. It is being marketed under the trade name of Supermil ASU 06752.

The grease has been adopted by the Air Force to solve the problem of lubricating bearings of internal brake assemblies of supersonic jet planes, according to D. F. Benton, Standard of Indiana's sales vice-president. He adds that it may solve lubrication problems in specialized industries, also, such as steel, glass, and ceramics, where extremely high temperatures are a factor.

•

Consumption of synthetic rubber in February was down from the January level, but accounted for a greater proportion of total rubber used than in January.

For all types of synthetic rubber, consumption in February was 88,165 long tons compared to 89,636 in January. However, of the total new rubber consumed in February, synthetic accounted for 64.94% compared to 64.23% in January.

The proportion of total new rubber accounted for by synthetic rubber was 64.58% for the first two months of 1959, compared with 63.31% over the same period in 1958.

•

Monsanto Chemical Co. has signed a contract with the Air Force to supply a research quantity of polyphenyl ether for testing as a high temperature "functional fluid."

The ether is one of a series of such compounds developed for the Air Force by Monsanto for possible use as thermally stable lubricants, hydraulic fluids, and greases. The material will be produced by the company's research department at Dayton, Ohio.

•

Recent and probable future gains in the performance of solid rocket fuels, plus their readiness and reliability, make them the likely choice for military missiles, according to Dr. J. P. Longwell, of Esso Research & Engineering Co., during recent testimony before the House Select Committee on Astronautics & Space Exploration.

Liquid rocket fuels still have superior performance when compared to solid fuels. But, Longwell said, research on solids is narrowing the gap, although there may always be a differential of about 10% in favor of liquids in this respect.

Solid fuels have compensating advantages in their reliability and their readiness for immediate firing.

•

Wyandotte Chemicals Corp. has completed rebuilding its ethylene oxide-ethylene glycol facility, which was disabled by an explosion and fire late last year (PW—Dec.5'58,p56).

The plant is located at Geismar, La., 25 mi. south of Baton Rouge. This was the first unit to come on stream at the company's new chemical manufacturing center there.

"Thorough investigation shows that our basic manufacturing process is sound, and the plant is a safe one to operate," says John Reifel, director of Wyandotte's engineering and development. "This will be even more true in the future, since certain technical improvements were incorporated in the plant's rebuilding."

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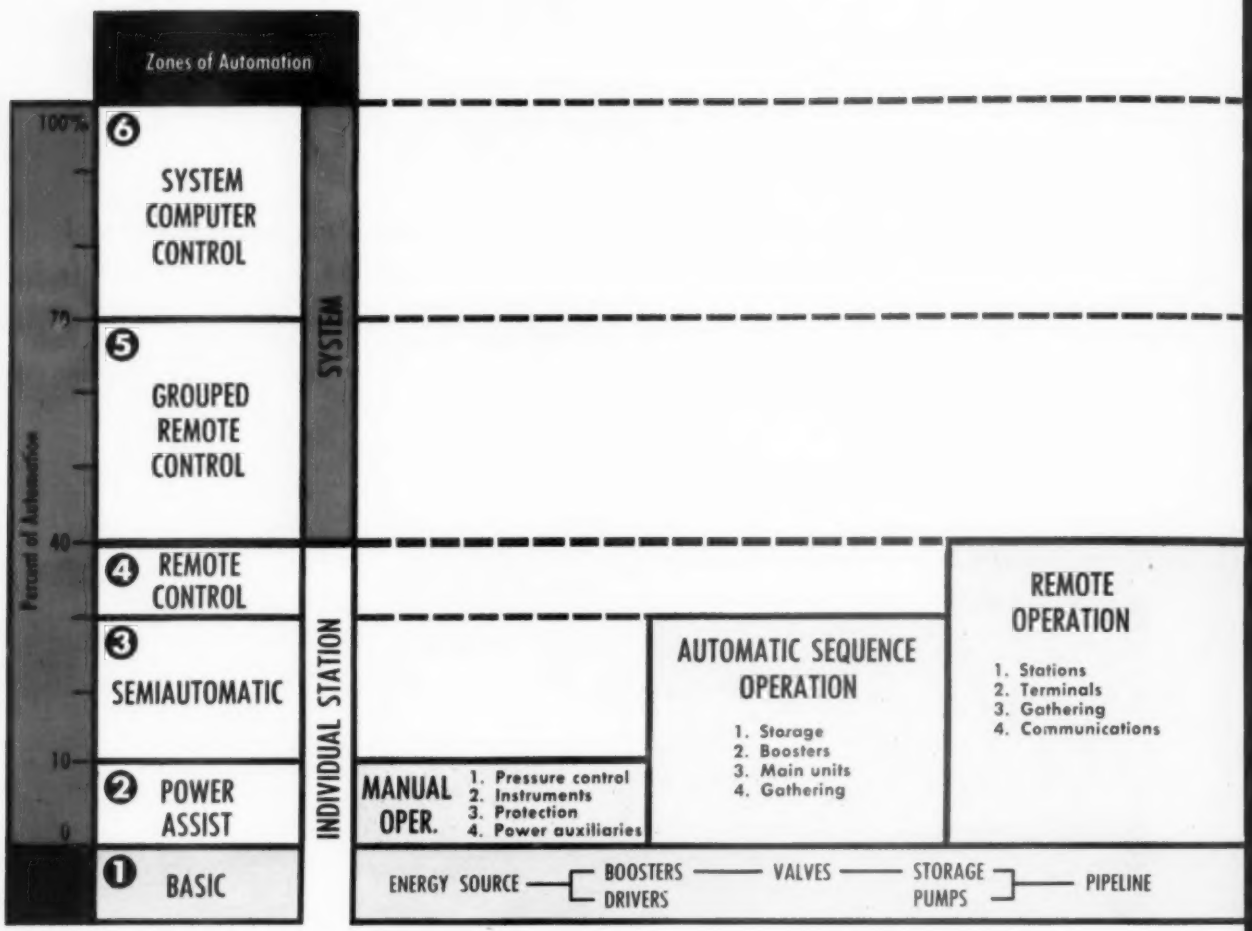


The Steps to Automation Are Steep

Oil and gas pipeliners are approaching a new operating era, in which they'll have to "automate" their lines —station by station or all at once—or run the risk of losing their business to competitors who will. It has come to that.

Pipeliners have been testing, using, and discussing every manner of equipment for automatic control for many years. Through these years, however, there has always been a core of resistance to such equipment, a goodly number of pipeliners who felt that automatic equipment was "unreliable, unnecessary, and uneconomical."

But recent developments in the broad field known as pipeline automation—and developments in the oil business as a whole—have whittled this resistance significantly. Now those who object to the general idea of more automatic pipelines are few; and these dissenters grow fewer as the months go on.

As a result, PETROLEUM WEEK's just-completed survey of the automatic pipeline in the oil industry—where it stands and where it's heading—found a snowballing effort on the part of pipeliners toward ever more automatic operations.

WHY REMOTE CONTROL? "TO STAY IN BUSINESS"

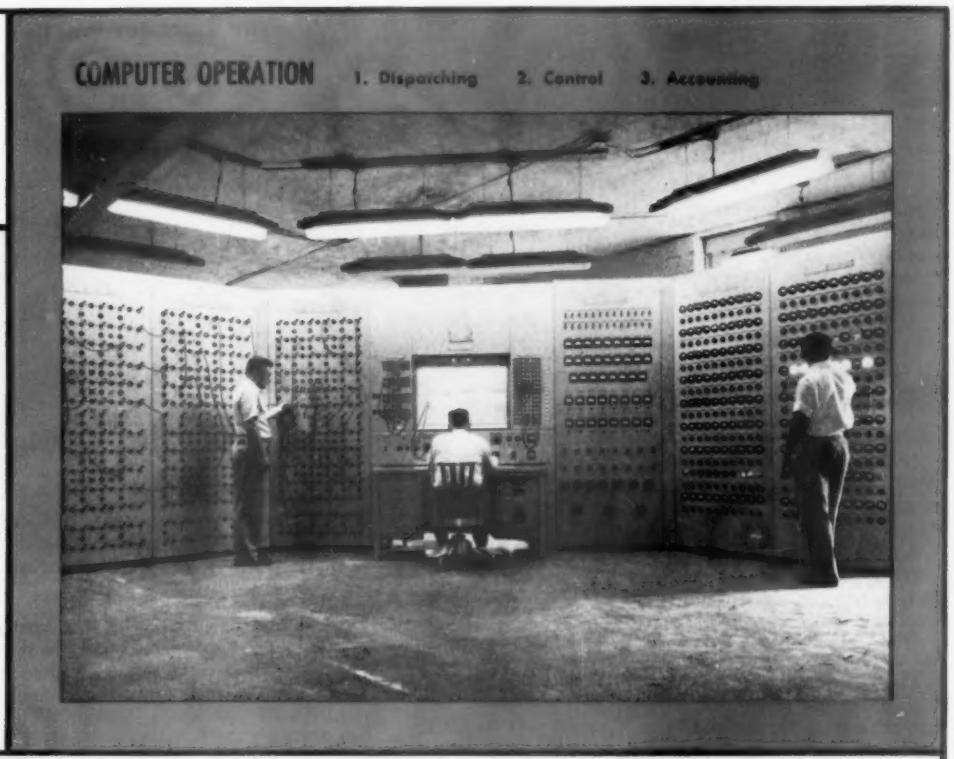
The pipeliners' new emphasis on increasing and improving their automatic operations is based primarily on one of today's cold, hard facts of business life: You must cut operating costs just as low as they'll go, or lose out over the long pull. Automatic equipment now seems to be the best way to do this.

"You can, if you want, chalk up the whole blossoming of pipeliner interest in automatic equipment during the past year, or year and a half, to the recession," one oil company economist says. "We had to make some rough re-evaluations of operations because money was tight.

"Our company, like others, decided to look at cost-cutting operating efficiencies not only on an immediate basis, but also with a long-range view. In pipelining, it

GROUPED REMOTE OPERATION

1. Communications
2. Data logging
   a. Deviation
   b. Rate of change
3. Logical assist



—But Pipelines Are Taking Them

seemed clear to us that you can save good money over the long pull by going automatic."

Another company's economist agrees—almost: "The recession had its effect, to be sure. But I think it was mostly a matter of bringing this pipeline automation issue to a head a little sooner than it might have happened otherwise.

"Many of us have felt for some time that increased automatic operation could provide the operating efficiencies demanded by the truly stiff competition in the pipeline business."

Pipeliners say that the greater operating efficiencies —and the most significant savings—of automatic equipment result from "relieving men of their operating control" along the line, as one pipeline planner discreetly puts it.

H. M. Karr, manager of technology for Shell Pipe Line Corp., one of the leaders in automatic pipelining, lays out the efficiency discussion this way:

"The major way you gain efficiency in a remote-control operation is by reducing manpower. I doubt that these remote-control facilities can do anything a man couldn't do. However, we consider remote operations better because only one man is operating the line. . .

"By this reduction in manpower, one operator is able to achieve minimum power requirements on the line and can achieve more selective use of pumps at stations."

There's also the factor of decreasing the possibility of human error in running the line. The fewer human operators, pipeline management is coming to believe, the less the chance of an operating failure.

But hard-headed pipeline-company economists make still another important point on the manpower factor. "The only tangible reason you can take to management when proposing automation of an existing system," one economist is frank to say, "is the savings on manpower. It all boils down to the fact that automating reduces the number of employees and therefore the payroll."

This reduction is usually not so brutal and impersonal as the spokesman makes it sound.

Shell, for instance, says, "So far, conversion of lines

continued ▸

to remote control has not resulted in the laying off of any employees." Other companies concur.

The reason: The reduction is usually a long-range proposition, resulting mostly from attrition. Pipeline companies increasing their automatic operations generally try to train the men replaced by such operations for other, often more rewarding, jobs. And they just don't hire the number of pipeline operating personnel they used to.

Manpower savings aren't the only efficiencies pipeliners are seeking in flocking to increased automatic operation. The automatic equipment is also favored because it works better with much of the recently developed pump-station hardware.

A pipeline engineer for one of the recently converted crude systems explains this development this way:

"Most of the older lines were equipped with diesel motors and positive-displacement pumps that had low rpms. They didn't have the flexibility of the more modern [electric] motors and centrifugal pumps.

"Electrification and automation have gone hand in glove, because electric motors are more reliable. With an electric motor, you can be sure of a start every time the switch is tripped."

Another pipeline expert, however, points out that recent improvements in diesel-powered prime movers have made such pumps conducive to remote-control operation, too.

Another incentive for going to more automatic pipeline operation is to increase throughput.

Many existing lines have been looped so many times that additional pump stations have been required to attain maximum throughput. The cheapest way to get this added pumping capacity, an increasing number of pipeliners feel, is to automate all intermediate stations.

WHERE DO WE STAND? WE HAVE A FOUNDATION

What will pipeliners have to build on in further automating their systems? How far has automation come in pipelining? Generalization is difficult, because progress varies greatly from one company to another. But this much can be said: Pipeliners are now shifting their emphasis to remote control of entire pipeline systems, from concern over remote control of individual pump or compressor stations.

In pipelining, progress in automation is a building-block process. There are well-defined steps that must be taken en route, and no company—whether it is building a new line or "modernizing" an old one—can advance in pipeline automation knowhow without gathering experience at each of these levels.

A few pipeline companies have moved up this "automation experience" ladder to a point where they are now taking aim at "the ultimate," the pipeline running on a completely unattended basis. Some companies have taken no steps at all.

The great majority, however, are in the middle. These companies have gathered varying degrees of information and experience on automatic operations by running individual stations on this basis; now they're working to apply this knowledge to running all stations on a line on on the same basis.

Just the Start For Pipeline Automation:

(API's 1958 pipeline automation questionaire)

	Crude gathering	Crude trunk	Products	Total
Pump stations reported	5,808	497	257	6,562
Pump stations with remote control	49	101	93	242
Total horsepower under remote control	11,065	118,105	116,725	245,895
Unattended, remote control stations	25	60	55	140
Partially unattended pump stations (2 men or less)	41	54	60	155
Pump stations actuated by line pressure, flow	22	19	61	102

On progress in automatic operations thus far, however, it's important first to note that crude and products lines are generally way out ahead of natural gas lines.

Several recently built crude systems—The Four Corners-to-West Coast system, and the Wilhelmshaven (Germany) to Ruhr line, for instance—are designed to run with all pump stations unattended. A few older crude lines recently converted can also work with all stations unmanned.

Several products lines also operate with all stations remotely-controlled by a central-point dispatcher.

Natural gas systems, however, have not yet approached this level of automatic pipelining, although they are beginning to take important catch-up strides.

The gap between crude and products systems and natural gas systems is readily explained.

First, the great variations in seasonal throughput in gas pipelining makes development of suitable automatic-operation equipment a trying process (as opposed to development of equipment to run the comparably stable crude or products lines).

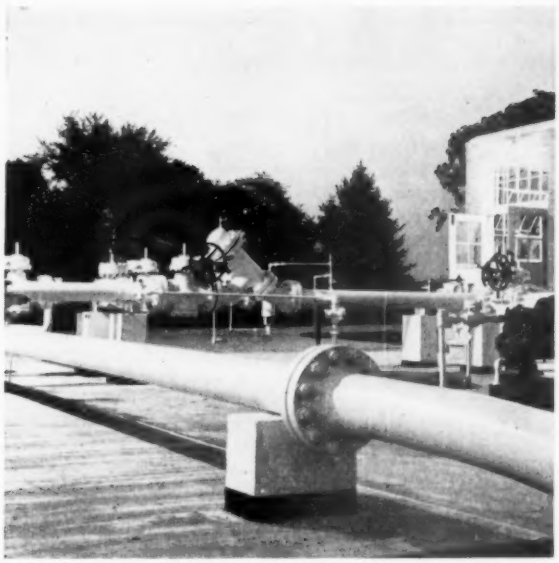
Second, natural gas pipelining is not nearly so well-developed a craft as crude or products pipelining.

More specifically, pipeliners working for more automatic operations have reached this point: They are ferreting out any remaining bugs in the more basic remote-control equipment, while gaining exposure to the tools that must be added for the automatic systems of the future.

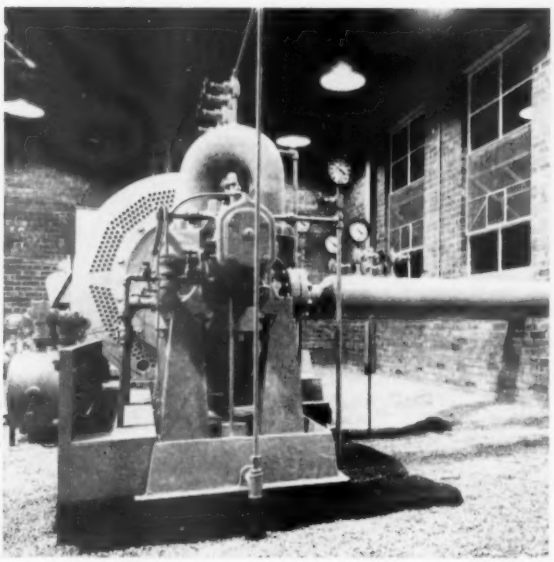
Here's how this two-directional activity is being carried out by automation-minded pipeliners:

The more basic equipment, such as supervisory control and telemetering systems, is being constantly re-evaluated for reliability and safety.

Again, it's the building-block nature of pipeline automation that makes this necessary. Without accurate and reliable collection and transmission of station information, automatic pipeline systems of the future, regardless of



REMOTE STATION SITES are no longer unusual. With . . .



PUMPS INSIDE, they'll weigh heavily in future pipelining.

their sophistication, will not be worth the blueprint paper they were designed on.

But the remote control of many stations on a line has also made necessary the grounding pipeliners are now getting in the more convenient methods of handling pipeline operational data—the use of data-logging and logical-assist equipment. There are basic functional features of data-logging which become more necessary as the number of remote-control stations increases:

• Deviation detection—The line operator must know as soon as possible when important operating changes occur. So it is becoming increasingly necessary to have a unit at the control center with the ability to monitor data coming in from the line and print out significant deviations almost as they occur.

• Rate of change—The operator must also know about—again as soon as possible—excessive or unusual changes in readings, because they invariably result from changes in operating conditions.

Logical-assist equipment might be called a memory device capable of logical decision. The operator would manually supply this equipment with all pertinent data, to draw on the equipment's "storehouse of facts" for a set of optimum operating conditions.

Pipeliners have also committed themselves in large numbers to the use of microwave radio as the means of communication for future remote-control systems.

Actually, such transmission can take place on any of three kinds of channels: microwave; a pair of open wires (as on a telephone pole); or a carrier-current channel (a cable).

Microwave's popularity is due largely to its beam characteristics and its multichannel capacity.

Its beam, through the use of repeater stations, can be transmitted as far as the length of any existing pipeline. And a single microwave beam can carry as many as 15 channels.

Finally, pipeliners are now at the stage where they are organizing their remote-control efforts—through both the American Petroleum Institute and the American Gas Assn.

API's Division of Transportation has a special group on pipeline automation, which is now swinging into full-speed-ahead action. The group recently completed its first annual report on the industrywide status of pipeline automation (page 46).

A spokesman for AGA's pipeline research committee recently told PETROLEUM WEEK that the committee is now initiating a study—its first—on the potential of automation in natural gas transmission lines.

continued ▸

The Automatic-Pipeline Dictionary

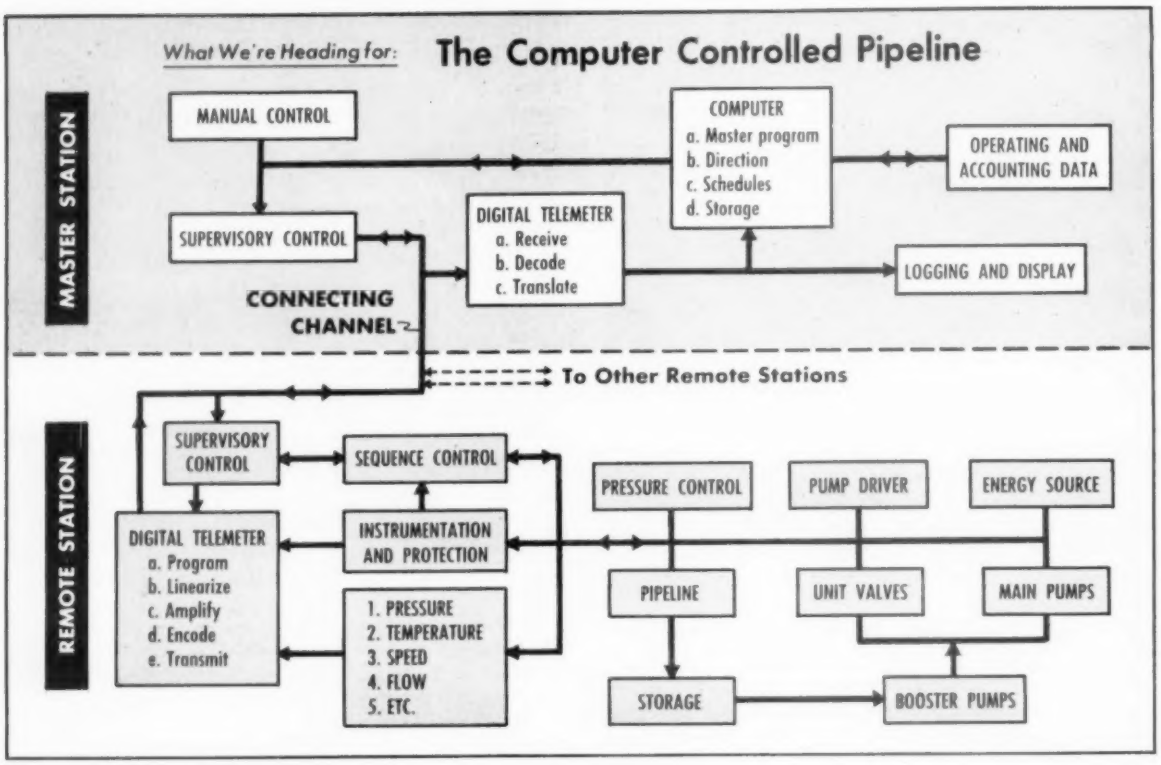
Supervisory control remote supervision and remote control of station equipment by transmitting electrical pulses.

Telemetering electrical transmission of a measurable quantity, i.e. pressures, from remote stations.

Remote-controlled station one that is controlled from a distance. No station operator is necessary.

Unattended station one operated largely by remote control, but with a resident operator nearby for checking.

Microwave multi-channeled radio system for transmitting supervisory control, telemetering data.



THE ULTIMATE: DIRECT, FULL COMPUTER CONTROL

With these pipeline-automation building blocks already in place, some pipeliners are beginning to cast hopeful eyes toward the future, and the finished product: the pipeline system in which operations are continually analyzed and scheduled—in short directed—by a computer.

How would such a system work? Like this:

A specially designed computer—none of those in operation today would do—would replace the operator at the pipeline's central control station. The computer would handle dispatching, control, and accounting.

- In accounting, the computer would forecast demand and deliveries; availability of crude, products, or gas; and storage facilities needed along the line.
- In dispatching, it would set up a schedule based on requirements, availability, and storage.
- In control, the computer would operate the supervisory-control and data-logging equipment, thereby implementing the dispatching schedule it had worked out.

How far away is such an operation? It's not just around the corner, that's for sure. It could even be as far off as a decade. One big problem: acceptance of the idea itself.

It's one thing for pipeliners to convince management that individual remote-control stations, and even pipelines run by a single operator, can make for operating efficiencies. But it's quite another thing, quite a long step, to prove that a robot-like system—one which virtually eliminates the human factor—could run error-free indefinitely.

The assistant manager of one major oil company's pipeline department, for instance, is convinced now that the computer-run pipeline system is feasible. He's willing to get to work right now on such a system. But the brass has turned him down—and is likely to keep turning him down for some time.

This I'm-from-Missouri point of view on the "ultimate in pipeline control" doesn't exist only at the top management level. It is also quite common down through the ranks.

Many pipeliners, from department heads down through dispatchers, balk at the idea of taking man out of the pipeline operation picture. A much-heard feeling at these levels is, "Sure, the day is coming when pipelines will be run by computers—maybe all industry will—but it's a long way off. Let's not eliminate the human element in pipeline operations until the machines can really do the job."

Actually, there's some justification for such feeling. Some manufacturers of the equipment needed for the

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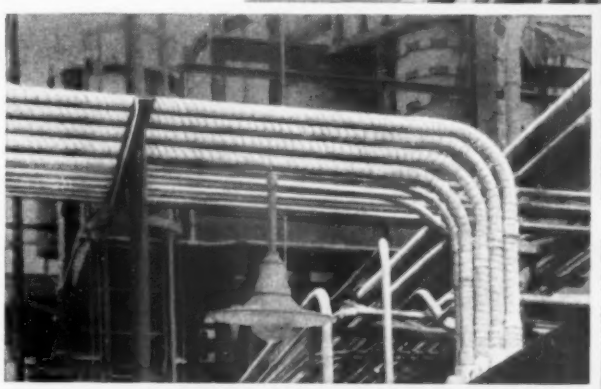

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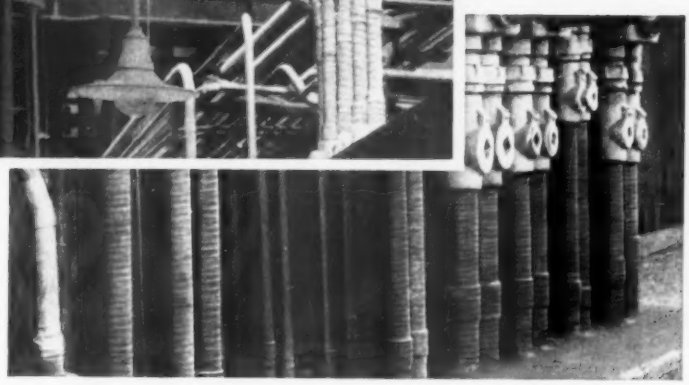

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National Tube supplied the pipe for the Laurel Line—approximately 66,000 tons of USS National Seamless and Electric Weld Line Pipe in sizes 24" O.D. to 14" O.D. for the main line and 9,000 tons for feeder lines, take-offs, and terminal facilities.

The eastern section of the main line, some 135 miles, is 24" diameter, API 5L X-52 pipe, ranging from .281 to .375-inch wall thickness. Initially, the line's throughput is expected to be about 100,000 barrels a day; however, this can be increased to 300,000 barrels with additional pumping stations. This line will make a greater variety of refined products available, in increased quantities, at a considerably lower transportation cost.

The Laurel Pipe Line represents another first for USS National Line Pipe. Why is USS National consistently chosen for rugged line pipe assignments? The answer in a word: *Performance*. You see, National Line Pipe combines the qualities of strength and dependability to give you a better product. Remember, too, that National Line Pipe is available in a complete range of wall thicknesses, steel analyses and in diameters up to 26 inches in Seamless and up to 36 inches in Electric Weld. For more information, write to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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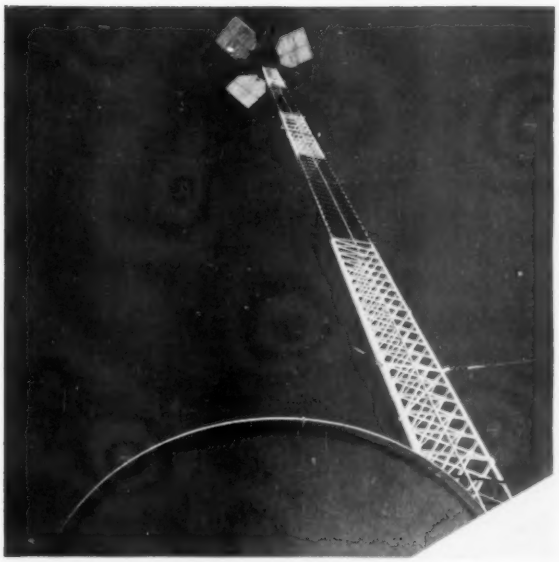
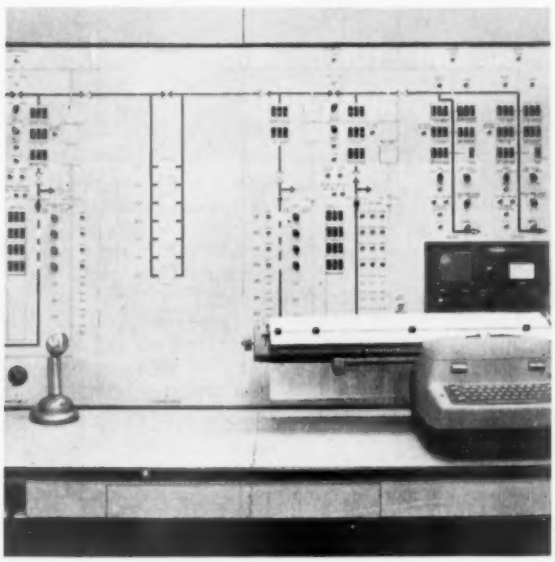


MICROWAVE TOWERS, for communication, and . . .



NEW CONSOLE will both help pipeliners 'go automatic.'

computer-controlled pipeline admit that much work must yet be done to perfect such equipment.

This does not mean that the systems now being marketed for supervisory control, telemetering, data logging, and data transmission are not up to their jobs. It does mean, however, that the demands on each of these types of system—and on the computer—will be far greater in future automatic pipeline systems.

The speed, accuracy, and fail-safe features of the systems for acquisition, transmission, and reduction of the pipeline's operating data will have to be improved to meet the needs of the completely automatic pipeline.

And the computer to run the line will also have to be something beyond what is available today: It will have to be a specially designed computer—neither analog nor digital—with a high degree of reliability. Its self-checking and trouble-locating circuitry will have to provide quick isolation of difficulties; and it will have to provide ready replacement for faulty parts.

Gus L. Maciula, chief engineer of Service Pipe Line Co., which runs one of the more complex remote-control systems today, suggests this answer to the problem:

"We need the analog functions for analysis and monitoring, and the digital functions for making decisions and corrections. Both types have their limitations, but the cost of installing both to overcome the deficiencies of each other is prohibitive.

"Only some sort of hybrid between the two will give us a solution."

Computer-makers say that the trend now shaping up in transistorization of computer equipment may be a big help in coming up with such a machine.

The "break-in" for the computer that will run a pipeline will have to be a gradual process, one in which pipeliners slowly get acquainted with how a computer can help them—as some pipeliners are now doing—while improvement in equipment continues.

One suggested "get-acquainted" procedure:

Use of existing computers by pipeliners to direct simulation of the current dispatcher's function; then use of the computer to run mathematically- and empirically-derived models of the pipeline system; and finally a combination of these techniques to get a more comprehensive evaluation of the pipeline system behavior.

Several pipeline companies are already well along in such work.

Leading exponents of this kind of work with computers include: Plantation Pipe Line Co., Great Lakes Pipe Line Co., and Shell Oil Co. among products pipeline firms; and Columbia Gas System, Inc., Tennessee Gas Transmission Co., and Southern Natural Gas Co. among gas pipeliners.

There is, however, a whole new approach to the computer-controlled pipeline, which is just now being hatched. This point of view would de-emphasize the special computer at a control center by using several smaller computers to do much of the work at the individual pump or compressor stations.

This approach, called "Remote Reset Automatic Control" by Southwestern Industrial Electronics Co., one of its staunchest supporters, would take much of the burden of the automatic pipeline's operation off the data-transmission systems and deliver it to the computer.

SIE's compressor-station/pump-station computer would continually direct the function of valves, start and stop, and other equipment at the individual station it serves.

But it would be "supervised" in this direction by a central computer's predetermined schedules. These schedules would be based on weather, market fluctuations, contract changes, allowables, and other factors.

SIE has its station computer in production. Its central computer is still in development (PW—Jan.2'59,p29).

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AT STAKE FOR OIL, GAS: SURVIVAL AS FUELS

The effect of this new drive toward automatic oil and gas transmission goes far beyond pipelining itself. It touches very much on the oil industry as a whole.

The major developments in any of oil's major segments have historically had a bearing on the other parts of the business; that's the integrated nature of the industry.

The opening of a major new producing field, the development of a new basic refining process, the maturity of a large new market—or significant new operating efficiencies in pipelining—each of these have reverberations through the entire oil business cycle.

The main impact of the more automatic pipeline on oil and gas in general seems negative. But it is, in fact, positive: The more automatic—the more efficient—pipeline is one of the few basic factors left to check what might otherwise be steadily-rising retail prices for oil products and gas.

This is particularly true in oil operations. Costs of producing oil, for instance, have risen some 58% over the past ten years, according to the Chase Manhattan Bank.

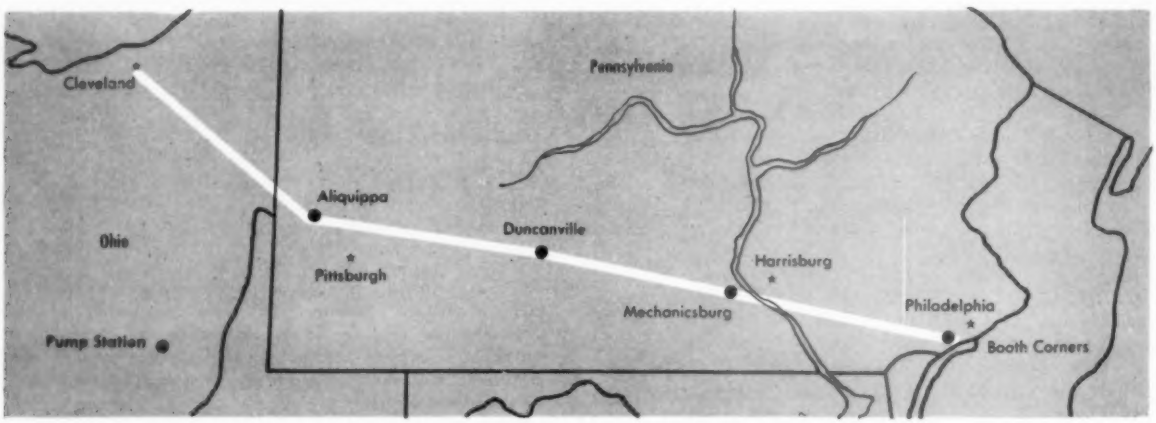
Processing costs have risen at least as much over the same period. And marketing expenses don't trail far behind.

Operating costs for transportation of oil by pipeline, on the other hand, have actually been cut. One telling estimate: The cost of pipelining petroleum products has been cut almost in half over the past 20 years.

The gas pipeline today serves much the same role. With wellhead and distribution costs rising steadily, mainline long-distance gas transmission systems face the task of holding the price line—at least as much as they can.

"If you don't think this role of efficiency in pipelining is important to the oil and gas industry" one oil company economist says, "take a look at the progress in cost-cutting now taking place by some of oil's competitors and potential competitors in the energy market."

Products Lines: Laurel Leads



'MOST AUTOMATIC' products line, according to API automation expert A. R. Heidebrecht, the Laurel Line is ready for use.

A brand new products line remote-control system—the one just starting up on the new Laurel Pipe Line—could turn out to be of great significance to the field of automatic pipelining.

A. R. Heidebrecht, manager of operations and engineering for Platte Pipe Line Co., and chairman of the automation group of the pipeline section of API's transportation division, feels this strongly about the Philadelphia-to-Cleveland line:

"We would like to point out that the Laurel Pipe Line . . . will be one of the most highly automated pipelines in existence. . .

"It is unique in that the scope if its remote operations is greater than attempted by any pipeline up to this time."

The Laurel System will have four pump stations. They'll be located at Booth Corners, Mechanicsburg, Duncanville, and Aliquippa, Pa.

The big thing about Laurel is that it will have equipment for remote-control of all terminals.

Remote control of product line terminals has been a most difficult problem, and few product pipeline companies have had even moderate success in tackling it.

Heidebrecht recently summed up Laurel's "unique features of operation" this way:

• "The increased scope of remote control from a central dispatch point;" and

• "The coordinated control of remote booster stations and terminal delivery points."

The line also has some unusual supervisory control features.

Heidebrecht puts them in this order:

• "Remote set-point control of flow rate, station suction, and outbound line pressures.

• "Indication by lights of station excess throttling, high flow, fire eye, and a high strainer differential.

• "Indication of pressures, and positive-displacement meter readings, which are logged hourly and on demand.

• "Continuous indication at dispatch point of capacitance-type batch detector."

Also because of its unusual dispatching problems—the line "telescopes" from 24 in. in diameter down to 14 in.—the Laurel System could be one of the first lines to be run by a computer.

Laurel management is said to be considering eventual operation of the line by some specially developed computer. Here's why:

The need for a computer-run operation of a pipeline increases with the complexity of its dispatching problems. If ever there was a products system with a complex dispatching problem, it's Laurel.

First of all, there are three shippers using the line—Sinclair Refining Co., the Texas Co., and Gulf Oil Corp. Each company moves anywhere from four to six products. So commingling, the traditional products-line problem, takes on new proportions.

In addition, the Laurel dispatcher must make allowance for market demand all along the line, while considering the flow necessary in the various-diameter sections of the line.

Laurel management will make clearer its position on remote control of its line in a paper to be presented at the pipeline conference of API's transportation division next month.

But Cherokee Draws Close

Cherokee Pipeline Co., however, has just installed, and is ready to use, what it feels may be "the most advanced supervisory remote control system so far"—a system using transistor and diode "solid state" components throughout.

Cherokee is quite optimistic about the potential of its new system, and expects to have it in full operation within the next few months. Southwestern Industrial Electronics Co., one of the Dresser Industries, built the system to Cherokee's specifications.

The new supervisory system will provide complete remote control of all pump stations over the 500-mi. pipeline system.

Four "slave stations" along the right of way will be controlled from a central dispatching office at the line's Wood River (Ill.) terminal. Three additional slave stations will be added along the line in the future. Two input stations, because of special product receiving problems, are manned.

Cherokee feels that the system's "solid state" components give maximum reliability in the remote control of the line. "We have gone beyond mere instrumentation," spokesman for the pipeline told PETROLEUM WEEK. "This is actually real, automatic, remote control."

Heretofore, supervisory control systems have generally used electric-mechanical relays or vacuum tubes. The new system, however, uses solid-state components—made of silicon and germanium—to do the job.

The company says that, unlike electric-mechanical relays and vacuum tubes, solid-state components depend for their life on how the system is operated (not on how many times or how long it is operated).

If the right environment is maintained, the company contends—if overloading is avoided, for instance—and the components are produced with proper quality control, the components may last indefinitely.

The scanning cycle on the new system is a remarkable four seconds roundtrip to all unmanned stations. And the system may have one of the most effective "fail-safe" setups now available.

Scanning information is transmitted within milliseconds, so that there is only one station being asked for or delivering data at a given instant. But the scanning is so fast that the end result is the same as if all stations were being scanned simultaneously.

And only one conventional, party-line, voice-frequency telephone circuit is needed for the system.

"Fail-safe" in a supervisory control system simply means that if anything goes wrong at an unmanned station, the station will shut itself off. That's just what would happen in this case.

"We can lose supervisory control, and the equipment will protect itself," a company engineer says. "And you can't get the system excited. It isn't emotional at all."

The master station uses a monitor-computer, along with some of the most unusual equipment ever put into pipeline operation, to aid the dispatcher.

The binary-digital type computer uses a magnetic-drum memory to scan and record station data, and compares this data with earlier information. If there's an unexplained great difference, it nudges another unit to warn the operator.

Other major equipment at the master station includes these devices:

• An hourly logger, which logs station variables on an hourly basis and prints the number of barrels of product going through meters at the line's delivery points.

• A deviation printer, which catalogues station malfunctions and alerts the operator to them.

• "Mimics"—paneled diagrams of equipment on the line, which show the condition of each piece of equipment.

The pipeline company feels its "system concept" of planning the remote-control equipment is largely responsible for its success.

Company engineers say that by specifying exactly what you want in supervisory equipment you can let the supplier build it as an integrated project and get optimum accuracy.

The system was designed to run utimately on a fully-automated basis—controlled by a computer.

"All we have to do," says a company spokeman, "is add the decision-making equipment."

SPECIAL REPORT
AUTOMATIC
PIPELINE

Crude: An Automatic 500,000 b/d

In crude-line automation, pipeliners are watching the development of a foreign line's remote-control system—the system on the new Wilhelmshaven (Germany)-to-Ruhr line—because it could have important bearing on the design of future crude-line control systems, regardless of location.

The Wilhelmshaven line, recently put into operation by Nordwest Oelleitung GmbH, the German subsidiary formed by a group of American and British majors, carries crude from the North Sea port to the Ruhr Valley.

The line as it now stands is hardly a stimulant to the imagination of a pipeline-control specialist; it has only one pump station, at Wilhelmshaven. However, the well-set-out plans for future remote control of the line do excite their interest.

First of all, the Wilhelmshaven line is designed for eventual movement of a hefty 500,000 b/d of crude, with all mainline stations (three) running on a completely remote-controlled basis.

The 28-in. Wilhelmshaven line is now pumping some 200,000 b/d with the single pump station at its Wilhelmshaven input terminal. Next year it will add another pump station at Gronau, increasing capacity to 350,000 b/d. Sometime in the early 1960s, two more stations—at Ostenwalde and Duisburg—will bring the line's capacity up to 500,000 b/d.

The Wilhelmshaven line will by no means be the first crude system to have all pump stations run from one central control center. Last year, for instance, Shell Pipe Line Corp. began operating the Four Corners-to-West Coast crude system on the same basis. And by the time the Wilhelmshaven line is brought up to planned capacity, it's reasonable to assume that more crude systems using all remote-controlled stations will be built.

But the amount of crude to be moved by the planned Nordwest remote-controlled system dwarfs the Four Corners lines' capacity. And no planned remote-controlled crude system even approaches the Wilhelmshaven line in capacity.

"The German engineers are, to some extent, pioneering in attempting remotely-operated deliveries on such a large scale," says R. E. Cannon, of Plantation Pipe Line Co., who helped design the line.

Also, the German line will apply remote-control to help work out a dispatching problem most crude lines are not afflicted with—heavy batching of various grades of crude.

Cannon says the line will handle grades of crude varying from .823 to .903 specific gravity (40 to 25 API gravity), and that "there will be times when it may be necessary to batch adjacent crudes having as little as .005 difference in specific gravity."

Because "accurate determination of the cut point will be extremely difficult," according to Cannon, "studies and tests are being made with capacitance-type, gamma-ray, and other-type devices for gravity determination, which are simple enough for remote telemetering and which are foolproof enough for unattended operation."

Furthermore, the line will have remote-control of the Wilhelmshaven tank farm and the refinery take-off valves along the system.

NEW GERMAN LINE has heavy flow, various types of crude.

The Wilhelmshaven control center will have two control desks, each with a schematic diagram. One desk will operate the tank farm, the other the pipeline.

The Wilhelmshaven tank farm will eventually have 48 200,000-bbl. tanks, each with electronic remote-gaging and temperature-reading equipment.

Low- and high-level tank alarms are provided on the tank-farm control desk, along with indicating lights to show which tanks are being used to receive, and which are being pumped out.

Remote operation of the delivery facilities will be sequenced so that the operator at Wilhelmshaven will only have to push one button to initiate a delivery to any given refinery. The valves at the delivery points upstream from that refinery will automatically return to their normal position.

Nevertheless, the remote-control system is not radically different from most of those that are in operation in this country.

"The sequence control and protective scheme worked out for the pump stations follows modern practice in this country," Cannon says.

Outbound line pressures and station suction and discharge pressures from each station will be telemetered to recorders on the Wilhelmshaven control desk.

Communications will be over leased wires.

continued ▸

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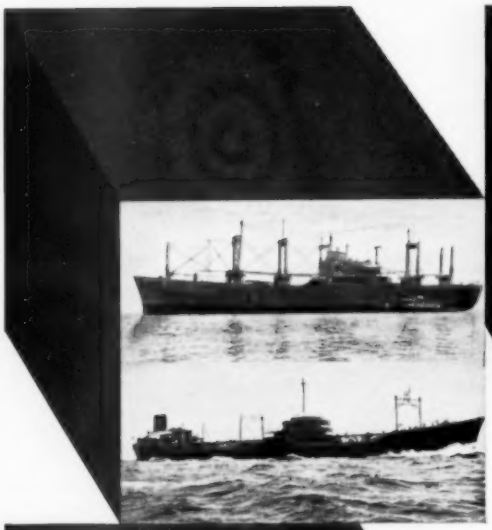

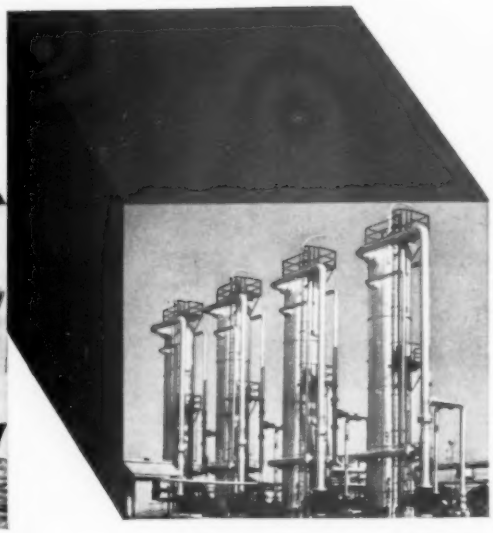

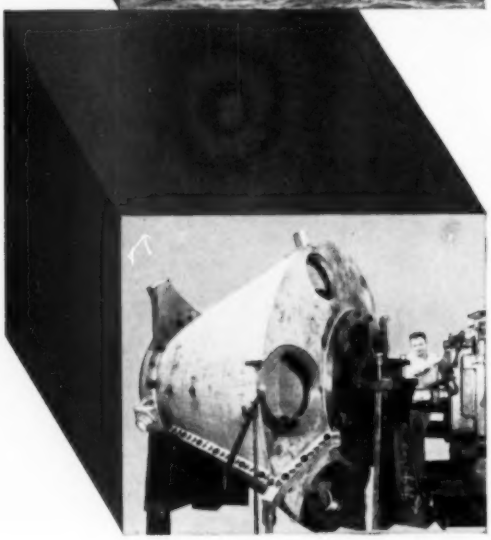

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Gas: An Automatic Billion cf/d

Columbia Gulf Transmission Co., out ahead so far in the race toward pipeline automation, is working to stay out ahead.

Columbia Gulf is the recently-acquired subsidiary of Columbia Gas System, Inc., that used to operate under the name of Gulf Interstate Gas Co. The company has an 840-mi. mainline, which takes Louisiana natural gas to the eastern Kentucky distribution facilities of its parent, Columbia Gas.

Despite their recently increased efforts in the field of remote-control, most gas transmission companies agree that Columbia Gulf is the leader in the field.

The reason is simple enough: Columbia Gulf's system was conceived in the early 1950s, quite a bit later than many of the large gas transmission systems. Columbia Gulf's designers, therefore, had new remote-control data, equipment, and concepts at their disposal—and they made good use of them.

They built into the system a "disposition" for remote control—in other words, a readiness to assimilate remote-control equipment as it became available.

Columbia Gulf already has five of its ten mainline compressor stations on remote control.

It uses a central control console at Nashville, Tenn., to monitor and control four 3,500-hp. supercharged internal-combustion engines at each of five locations on the 30-in. system—at Alexandria, La., Inverness and Corinth, Miss., Hartsville, Tenn., and Stanton, Ky.

Columbia Gulf uses the Centralized Transport Control system of Union Switch & Signal, a division of Westinghouse Air Brake Co., on the line. All information between control points and the Nashville control board is transmitted by digital telemetering.

Information from the stations can be logged at the Nashville control center once every 15 minutes. Data on time, static pressure, flow discharge pressure, and the number of engines running at each of the five stations, upon arrival at Nashville, is typed on a single-line automatic typewriter to give the dispatcher an up-to-date record of line performance.

Besides control of the five pumping stations, the Columbia Gulf system can also:

- Monitor operating conditions at two major intake points and two check points.
- Monitor operating conditions and control discharge pressures at five semi-automatic stations, which alternate along the mainline with the five remotely-controlled stations.

COLUMBIA GULF has five, plans 20, remote-control stations.

- Control the flow of gas leaving the line at two delivery points.

That's just the beginning at Columbia Gulf. "Phase II" of its remote-control program is to convert its remaining five compressor stations to automatic status.

The five stations involved in Phase II also have a combined horsepower of 70,000. They're located at Rayne and Delhi, La., Banner, Miss., Hampshire, Tenn., and Clementsville, Ky.

Columbia Gulf doesn't say when these stations will be converted to remote operation.

Far more ambitious, however, is the company's proposed "Phase III" in remote control. This would add ten more remote-controlled stations to the system when Columbia Gulf brings the system up to ultimate capacity.

Each of the ten contemplated stations would have 14,000 hp., bringing the total system horsepower to 280,000. The system, which is now moving 680-million cu. ft. of gas daily, would then be able to carry well over 1-billion cf/d.

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DEPT/International

Venezuela Slates Big Turnout in Cairo

A top-level 13-man team will represent Venezuela at the Arab Oil Congress in Cairo.

It hopes to sell the Arabs on Venezuela's oil legislation, and on joint policies toward companies and markets.

The team will also visit various Arab states to pursue talks of "common interest."

BEIRUT—Venezuela will be no mere spectator at the Arab Oil Congress in Cairo this month. It's sending an impressive delegation of 13 important officials.

The delegation will be headed by Minister of Mines & Hydrocarbons Dr. Juan Pablo Perez Alfonzo, who has already expressed his intention of seeking cooperation of Middle East governments on oil (PW—Mar.6'59, p32). He is expected to use the occasion to make extensive contacts with Arab oil authorities gathered in Cairo.

The delegation will also visit producing and nonproducing Arab states for talks "of common interest," PETROLEUM WEEK learned here.

The Venezuelans, in fact, aim to seek close coordination with Arab producers on all aspects of the oil industry.

According to one Venezuelan diplomat in the Middle East, such coordination is necessary in matters of legislation, as well as on production and stabilization of prices.

"Middle East oil has certain advantages over ours: "It's cheaper," he said. "On the other hand, our crude has other advantages: It's better marketable in the Western Hemisphere."

To eliminate what they consider harmful competition, the Venezuelan policy makers want to get together with the Arabs, discuss oil problems, and coordinate their policies toward companies and markets.

"We are interested in seeing the Arab countries adopt our oil and labor legislation," says one Venezuelan official.

"This will give better terms to the countries concerned, raise living standards, and help the countries resist economic pressures from Russia or Japan."

Venezuela fears that Russian and Japanese inroads into Middle East oil would not only be harmful to Western strategy, he says, but would also be downright catastrophic as far as Venezuelan crude is concerned.

Venezuela thus has a double aim in the Arab countries: (1) to eliminate cut-throat competition between Caribbean and Mideast crude; and (2) to discourage Arab concessions to newcomers like the Russians and Japanese, both of whom, they fear, may play havoc with world crude prices in the future.

Already, it is reported, the Japanese are negotiating in India to sell still-undiscovered crude from their Saudi-Kuwait Neutral Zone offshore concessions.

The Venezuelan policy-makers believe that if Arab producing states adopt Venezuelan legislation and set out the same terms for oil companies, Arab oil will reach world markets under much the same conditions as Venezuelan oil. In the long run, they say, this will benefit the Arabs, as well as Venezuela.

The Venezuelan Legation in Beirut is publishing textual Arabic translations of Venezuela's new income tax decree and other legislation of interest to the oil industry.

In a preface to the recently issued translation of the income tax law, Bernardo Flores, Venezuela's envoy to the United Arab Republic, Lebanon, Ethiopia, and Iran, wrote:

"Venezuela, which considers the Arab Nation a sister nation, with solid social and human ties, hopes that the Arab countries will benefit from this translation of the income tax law, which will demonstrate to them Venezuela's excellent achievements in economic legislation."

He added the hope that Arab countries will find the text of the income tax law "useful in their new social and economic renaissance."

Flores is also in charge of liaison between Venezeula's Ministry of Mines and Arab directors of oil affairs.

The legation has already published in Arabic Venezuela's Hydrocarbon Law of 1943, and Regulations Governing Labor Relations in the Oil Industry. It is now preparing translations of Venezuela's social security laws, and the labor law and its regulations.

Arab Oil Congress to Open on Schedule

BEIRUT—The Arab League confirmed this week that the Arab Oil Congress will open in Cairo on Apr. 16, on schedule, despite the current Cairo-Baghdad feud, tense as this has become in recent weeks.

Preparations for the Congress and the Oil Exhibition are now in their final stages.

Working sessions at the Congress will be set up under four committees, which will take up the topics on the agenda. The committees are: Technical & Scientific; Economic; Legal; and Political (PW—Feb.20'59,p108).

Forty reports have already been received by the Congress secretariat. All will be published and distributed for discussion.

More than 35 companies and 200 oil men will participate in the Congress and the Exhibition, the Arab League has announced.

The delegation of each participating Arab country will include both government and oil company representatives.

As of last week, there was no official confirmation that Iraq has decided not to participate, though Baghdad reportedly has informed Iraq Petroleum Co. that the company is not to take part as requested at an earlier stage.

Non-Arab Iran—another key Middle East producer—will not participate. But Venezuela will be represented as an observer by a top-level delegation.

Here's the list of the Venezuelan delegates who will accompany Minister of Mines & Hydrocarbons Dr. Perez Alfonzo to Cairo:

• **Dr. Manuel Perez Guerero,** Director of the Bureau of Coordination & Planning, attached to the Venezuelan Presidency. He was Minister of Finance in 1947-48 when Venezuela applied the 50-50 principle in oil profit-sharing, and has spent eight years in the Middle East representing United Nations agencies.

• **Dr. Manuel B. Egana,** counsellor on petroleum affairs in the Ministry of Development, which he formerly headed. He is a law professor.

• **Dr. Ezequiel Monsalve Casado,** counsellor to the Ministry of Mines & Hydrocarbons, and professor of mining law.

• **Dr. Eddie Morales Crespo,** Director of Political Economy at the Foreign Affairs Ministry.

• **Congressmen** Domingo A. Rangel; Pedro M. Pareles Guevara; Jose Herrera Oropeza; and Gonzalo Garcia Bustillos.

• **Dr. Eduardo Acosta Hermoso,** newly-appointed Director of Hydrocarbons (box, below).

• **Don Carlos Pinerua,** director of the oil workers' federation.

• **Don Jose Atara and Jose Ganimez Obregon,** newspaper executive.

The team thus includes representatives of all Venezuela's major political parties—except Communists.

Pemex Makes Its Oil Finances Public

MEXICO CITY—Oil and natural gas exports put Petroleos Mexicanos $6-million ahead on its export-import balance last year, according to the first public financial statement in its 21-year history.

On its balance sheet, Pemex officially listed assets at the peso equivalent of $560-million and liabilities at $320-million.

But with "a prudent revaluation," Pemex said, the assets should actually total $800-million, with the replacement value for physical properties and equipment reaching $1.2-billion.

This year's budget provides for income of $416-million and expenditures of $436.8-million.

To make up the $20.8-million deficit, Pemex plans to raise some further product prices in Mexico, and to make "adjustments" in personnel, and other "economies," to lower costs (PW—Jan.9'59,p40).

Pemex is aiming at substantial production boosts this year over 1958: a 10% increase in crude output and a 22% jump in gas production.

These targets would mean an average of 303,000 b/d for crude, compared with the 1958 average of 275,000 b/d, and an average of 882.8-million cu. ft. daily for natural gas, compared with last year's 720.3-million cf/d.

Crude output had already hit 301,000 b/d in the last two weeks of February and is slowly rising, says Pemex chief Pascual Gutierrez Roldan.

Drilling plans call for 477 new holes this year, and possibly more—compared with 379 drilled in 1958.

The total last year included 76 exploratory tests (618,683 ft.) and 303 development wells (2,018,217 ft.), with an average depth of 6,958 ft.

Petrochemical plans are also getting under way. Pemex is already embarking on a program for plants that will cost some $36-million (PW—Mar.20'59,p74). Plans for others costing $80-million are being readied for the near future.

"Financing will be unlimited for us, as long as the projects are self-liquidating," says Pemex chief Gutierrez Roldan.

Some $72-million in U.S. and European bank loans and credits have already been lined up in the past two months to finance Pemex pipeline and petrochemical projects. Currently, Gutierrez Roldan says, Pemex is negotiating for another $50-million with Credit Lyonnaise, a French bank (PW—Mar.20'59,p10).

Argentina Sets New Oil Bid Terms

BUENOS AIRES—Argentina is trying a new formula for oil grants in its latest call for international bids on unproved acreage.

The tender, recently announced, calls for exploration and development in several provinces in Argentina's north and central zones (PW—Mar. 13'59,p16).

No deadline for bidding has yet been announced by Yacimientos Petroliferos Fiscales, which last week released the basic terms:

Bidders may select a maximum of 77,700 sq. mi., offering a minimum investment that will be taken into account by YPF in making the grant.

Awards will be made for an initial five-year exploration period. Two two-year extensions are permissible, with 50% reduction of acreage each time.

Geological and geophysical exploration and drilling for oil must be undertaken within the first five years. YPF will hand over without charge all information it has on the area. Two drilling rigs must be kept in operation.

Once oil is found, the contract area will be subdivided into 8,300-acre tracts and shared checkerboard with YPF. The producing well will form the center of one, to be operated by the company. The rest will be divided equally.

Development rights will be granted for a maximum 20 years. The company will be obligated to build necessary pipelines.

Oil production will be turned over to YPF, at prices named by the company in its initial bid. The prices must be detailed for the first and second 6,300 b/d, and for amounts up to 25,200 b/d.

YPF will cover taxes at federal, provincial, and municipal levels, but the company must pay social levies. The company may import all necessary equipment, providing the equipment is not available in Argentina at competitive prices.

Venezuela Names New Oil Official

CARACAS—Dr. Eduardo Acosta Hermoso was appointed Director of Hydrocarbons in the Ministry of Mines & Hydrocarbons last week, replacing Dr. Gustavo Thery Fombona.

Dr. Acosta, 40, was Venezuela's Minister Counsellor for Petroleum Affairs in Washington in 1958. He is a civil and petroleum engineer and graduate of the University of Texas School of Mines, and previously held a series of technical posts in the oil ministry.

What's New / AROUND THE WORLD

ETHIOPIA—Part of the oil rights surrendered two years ago by Sinclair have been picked up by a German independent.

Gewerkschaft Elwerath has been granted a 50-year concession in Ogaden province on a 50-50 profit-sharing basis. Sinclair had concentrated its exploratory drilling in Ogaden before withdrawing from Ethiopia after ten years of exploration over the entire country.

•

FRENCH SAHARA—About 120-000 b/d of crude from the new fields near the Libya border are expected to start flowing to seaboard in late 1960, when a new 485-mi. pipeline goes into operation.

Construction on the line from the Edjele and Zarzaitine fields to the Tunisian port of La Skhirra will start this June. Initial 140,000 b/d capacity of the line will be raised in stages to about 260,000 b/d.

Reserves at the two fields are now estimated at almost 1-billion bbl., with two-thirds of the total at Zarzaitine.

•

NEUTRAL ZONE—Oil output in the Kuwait-Saudi Arabian Neutral Zone reached 106,000 b/d at the end of last year, with a total 161 wells completed. This includes 46 new producers drilled during the year in the Wafra field, which was extended 4 mi. by one of them. American Independent Oil Co. and Getty Oil Co. each have an undivided half-interest in the operation.

Principal markets for the Neutral Zone's crude and products were West Germany, Italy, France, and Japan, according to Phillips Petroleum, a ⅓ shareholder in Aminoil.

•

EUROPE—The Common Market's Investment Bank has started financing operations: Two petrochemical projects in Sicily are among four ventures to which it will contribute $24-million.

The projects have just been approved by the Administration Council of the bank, which has a working capital fund of $1-billion.

•

IRELAND—Shell-Mex & BP, Ltd., is "actively considering" construction of the first refinery in Northern Ireland.

Negotiations are under way between the government, the company, and its parents.

•

ALGERIA—The first outlet for natural gas from the Hassi R'Mel gas field in the Sahara will be a 500,000-ton steel mill to be built at Bone, a port in northeast Algeria.

The French government has approved the project, which will take four years to complete. It will cost $200-million, including $40-million for a gas pipeline from the field.

•

FRANCE—A Shell affiliate has found oil in its first Paris Basin wildcat, some 60 mi. southeast of the capital.

No. 1 St. Martin-de-Bossenay flowed 14 bbl. an hour in a test of the 4,498-547 ft. interval in the Callovian (Jurassic), according to Cie. des Petroles du Sud-est Parisien. The well will be drilled to 8,200 ft.

•

IRAQ—A comprehensive oil policy for Iraq will be drawn up by a new petroleum commission set up by a decree approved by the Council of Ministers, Radio Baghdad announced. Its members have not yet been named.

The decree empowers the commission to: establish and operate oil concerns; carry out oil exploration, production, and refining; fix product prices; supervise oil concessions and concessionary companies; negotiate new concession grants or amendment of those existing; advise on new pipeline concessions and agreements.

•

IRAQ—Labor unions will be formed in Iraq's oil industry for the first time, by authorization of the Minister of Social Affairs. Headquarters will be in Baghdad, with branches in the north and south oil centers.

•

LIBYA—Oasis Oil Co. has found oil in a stepout in Block 32, 9 mi. east of its second oil find, in North-central Libya.

Details are not yet available: the well may correlate with findings on the No. B1-32 Dahra. That well found oil in a 60-ft. porous limestone zone at 3,747 ft. It may be capable of producing at the rate of 1,000 b/d, the company says.

•

AUSTRIA—Imports of regular gasoline—mainly from Italy and West Germany—may be virtually eliminated this year. There's been a sharp increase in Austrian output from refineries now processing Soviet crude, which has a gasoline yield of 25% to 30%.

Three Firms Sign for Bolivia Venture

BRAZIL—Only three of the five Brazilian groups originally interested in exploration in Bolivia apparently plan to go ahead with the venture, now that direct U.S. participation has been ruled out (PW—Mar.20'59,p70).

The three companies, whose charters were signed last week by President Kubitschek, are:

- Petroleo Andino, which was originally slated for backing by the T.U.L.M. Group (PW—Jan.30'59, p38);
- Uniao Brasil Bolivia de Petroleo, which had reached an agreement with Anderson Clayton and Kerr-McGee Oil Industries;
- Petrolifera Brasileira, a company formed by a Sao Paulo group headed by Oscar Ferreira Jr. This company had not lined up foreign backing, but was ruled eligible for the venture under the new regulations.

Now dropping out of the picture because of the new regulations is Petroleo Brasil Bolivia, which considers direct foreign participation essential. It originally had made an agreement with Pan American Land & Oil Royalty Co., of Dallas.

The fifth approved company—Petroleo Boliviana—reportedly will merge with Petrolifera Brasileira to join the Bolivian venture.

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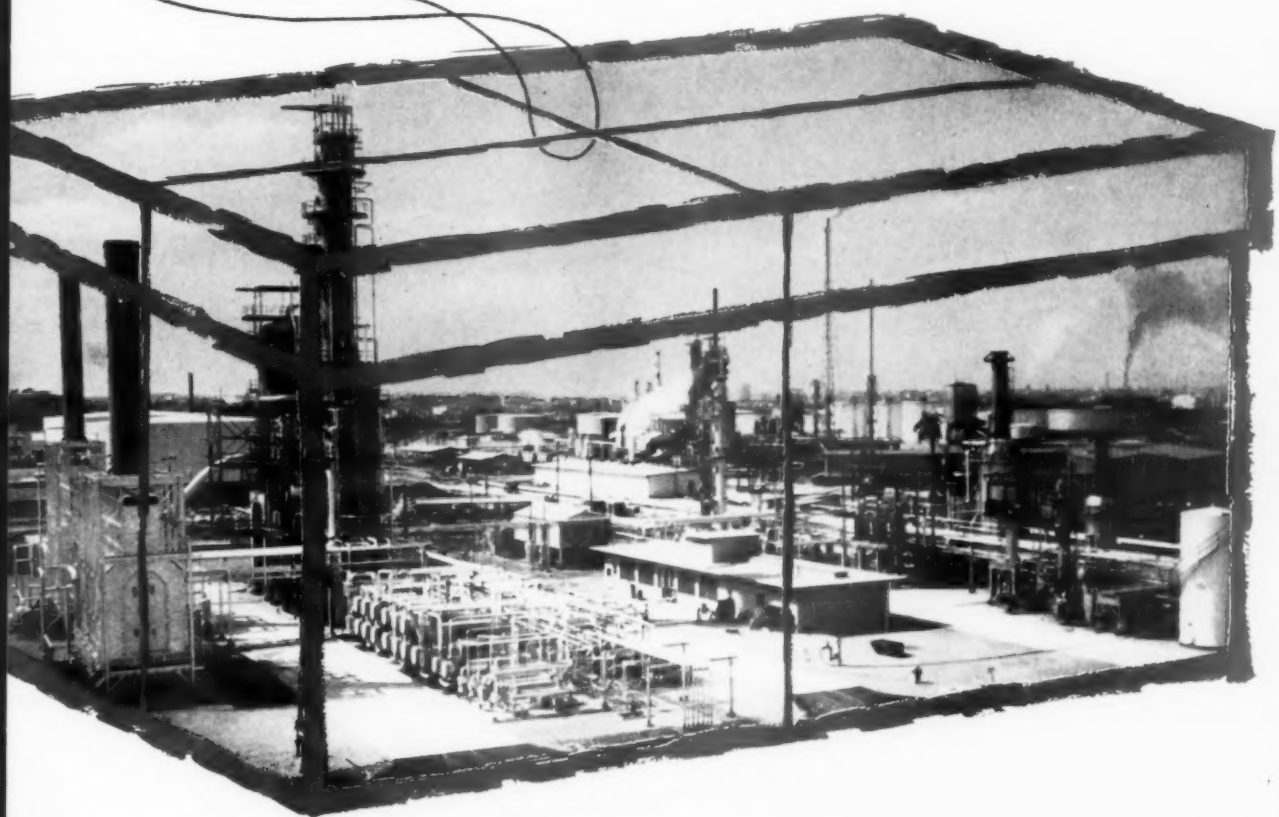


DEPT/Transportation & Storage

Import Controls Hit Tanker Men Hard

The unfavorable situation for tanker operators growing out of the new import controls leads to one question: Will we have enough tankers in case of war?

Tanker operators are facing up to a whole raft of problems—both new and old—brought to a head by the recent mandatory imports control program.

If one segment of the oil business has been affected far more than any of the others by the new imports program, it's the tanker trade.

U.S. producers, although they won an important battle in Washington, will face little operational adjustment because of the new program; the gain in over-all domestic production resulting from the program, when spread over the thousands of U.S. producing wells, will mean very little to individual producers.

Refiners will still get all the crude they need—although not always the types of crude best suited to their particular processing schemes, and in some cases at higher prices.

Marketers will still have the products they need to sell.

But the tanker trade lives on long-distance over-water transportation of oil only, and—even though many questions remain unanswered—there's no doubt that the new mandatory control program puts a serious crimp in this business.

Perhaps the most serious affect on the tanker business is in what operators will not do as a result of the imports program: Some mighty ambitious plans, hopefully filed away when the voluntary imports program came into being, must now be forgotten completely.

There was a time, in the early 1950s, when many in the tanker trade believed that they would have a big job to keep up with the demand for tankers in the latter part of this decade and the early 1960s.

These operators based their plans on the expectation that the difference between U.S. crude demand of 1955 and 1965—some economists saw a difference of 5½-million b/d—would be supplied by foreign crude almost exclusively. (This estimate assumed that U.S. production would remain relatively constant throughout the period.)

The large number of tanker operators who saw it this way felt that most of the additional foreign crude would come from the Persian Gulf, with the rest from Venezuela.

As a result, they began to plan their tanker fleets accordingly:

A rough rule of thumb is that it takes 9.21 tons of tanker deadweight to move 1 b/d of crude from the Persian Gulf to the U.S. West Coast, and that it takes 6.74 tanker deadweight tons to deliver 1 b/d of Persian Gulf crude to the East Coast.

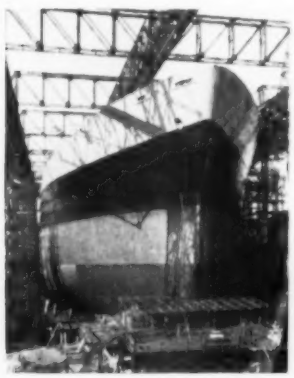
On this basis, the tanker operators figured they would need over 40-million dwt. of new tankers by 1965. That would have nearly doubled the size of the world tanker fleet.

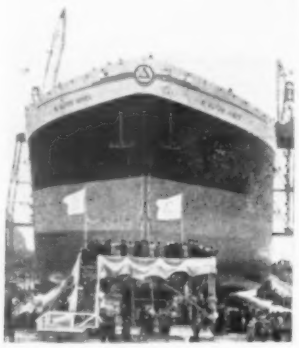
The voluntary imports program made many of these tanker operators stop in their tracks. The mandatory program has made them take a few steps backward.

Foreign-flag tanker rates will remain at least as low as they have been, until demand for such vessels reaches the level of supply—perhaps in five years.

These rates have been quite low—as low as USMC—50% to —60% on term charters, and down to USMC—70% for spot—for some time now.

Now these rates are expected to stay low, and perhaps even slip a bit further, through fall of this year. And





New Tankers—60,000 Tons and Up—Keep Coming

Mandatory import controls or not, there's still quite a backlog of tankers under construction both in the U.S. and abroad—vessels ordered for the most part about the time of the Suez Crisis. As a result, you'll be seeing pictures like these, showing new tankers joining the world tanker fleet, for months to come.

The 60,000-ton "Lake Palourde" (left), for instance, was launched at mid-March at the Newport News Shipbuilding & Dry Dock Co. yard. The ship will operate under charter to Union Oil Co. of California, between the Persian Gulf and the U.S. West Coast. Also at mid-month, the 71,000-ton "Princess Sophie" (center), the largest tanker ever built in this country, joined the Niarchos fleet for duty between the Persian Gulf and West Coast.

In Sweden, the largest tanker ever launched in Europe, the 70,000-ton "W. Alton Jones" (right) joined the Cities Service tanker fleet. Two sister ships are on order at the Sorviksvaret AB Shipyard in Uddevalla, Sweden, where the "W. Alton Jones" was built.

SIZE

SIZE

SIZE

SIZE

SIZE IS NO PROBLEM AT INGALLS

These two tankers are a striking contrast in size. The *SS Saroula* (background) is a 32,000-ton, 665-foot tanker which was recently delivered to Skouras Lines and which will be chartered to Military Sea Transportation Service. *Mobil Service* (foreground) is a 96-foot tanker, with a capacity of 42,000 gallons of oil to supply lubricating and special oils to vessels in New York harbor for Socony Mobil Oil Company.

Both bear the stamp of quality that has made INGALLS internationally famous for superior marine craftsmanship. INGALLS can supply any type transport vessel for the oil industry . . . large or small, specialized or conventional. Ask INGALLS for a bid on your next job.

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late 1959 will bring more hardship for T-2 rates, as many tankers in classes of 24,000 dwt. and higher are scheduled for launching about then.

Tanker building, which has been slipping badly in the U.S. and showing signs of weakness abroad, must also be expected to stay slack.

The tankers coming down the ways this year and next are mostly those ordered as results of tanker-operators' general optimism a few years back, and the temporary Suez Canal closing of 1956. But new building orders have long since fallen behind the volume of tankers being launched or under construction.

In the U.S., it's been 16 months since a shipyard has received an order to build a tanker. Foreign yards, which build tankers far more cheaply, haven't been as badly off, but their volume is slackening too.

Most operators of large fleets now say that a balanced position between tanker supply and demand may not arrive before 1964. By then, it is felt, age and tough competition from the newer, bigger tankers will drive many wartime-built T-2s into scrap.

These negative factors have some industry and government experts wondering if the U.S. tanker fleet would be able to meet the demands of a future national emergency.

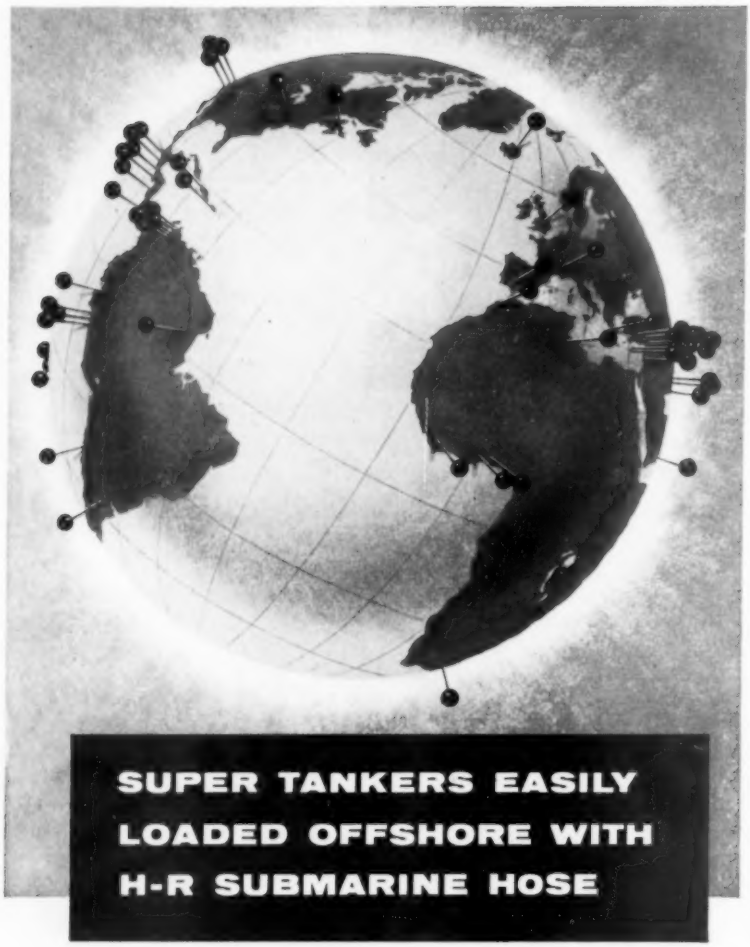
Recently, the Military Sea Transportation Service, the arm of the Navy charged with seeing to it that all overseas bases and allies are adequately supplied with oil, reported that the present tanker tonnage available to the U.S. in case of war could just about handle the job.

But MSTS said it would need every one of the tankers available to the U.S. to do the job. It made no bones about the fact that this would leave a great gap in the supply of East Coast and other refineries, which depend on coastwise tanker shipments for a good part of their crude supply.

If there is any bright spot in the over-all post-mandatory-imports-control tanker picture, it is the expected strengthening of the U. S.-flag trade.

Most East Coast refineries will have to rely more heavily on shipments from the Gulf Coast as a result of the tightening of their foreign crude supply.

"And then there's the resid picture," one transportation executive told PETROLEUM WEEK this week. "There's a hell of a lot of it building up on the West Coast again, and it's going to have to move to market around fall. The markets are on the East Coast, so you'll have another—even if only temporary—boost for U. S.-flag tankers."



SUPER TANKERS EASILY LOADED OFFSHORE WITH H-R SUBMARINE HOSE

Add Riverhead, Long Island, to the long list of ports where Hewitt-Robins submarine hose meets tankers at sea! Already on steady duty in such waters as the Eastern Mediterranean, Pacific Ocean, and Arabian Gulf, H-R submarine hose enables tankers to load or discharge through underwater pipelines connected to storage tanks ashore.

The Riverhead pipeline is 7,200 feet long. The hose itself (the first East Coast installation) is 175 feet long. It is reinforced with multiple layers of heavy fabric and steel wire, and can take an end-to-end pull well in excess of 115,000 pounds. It withstands high internal pressures from ships' pumps and the external pressure of a 67-foot depth, and resists kinking and flexing action during rough water usage.

H-R submarine hose resists both coral abrasion and rot, and has given over 10 years of continuous service in installations abroad. It is available in sizes up to and including 16" internal diameter. For information or service, contact your local H-R representative, or Hewitt-Robins, Stamford, Connecticut. Ask for Bulletin 4-20.

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Which U.S. Markets for Canadian Gas?

It's beginning to look as if Western Canadian gas wells will be linked with U.S. markets after all, so the question now is, how many U.S. Markets?

Gas production in Alberta has been slowed considerably by the lack of outlets to the hungry American markets. Proposals to provide such outlets have been plentiful, but the many governmental approvals necessary for such proposals have prevented fulfillment of any of the plans so far.

But now things seem to be loosening up.

The Alberta Oil & Gas Conservation Board last week boosted Canadian producers' hopes for such a link considerably by granting gas export permits to two companies planning to serve U.S. markets.

The Board recommended that Alberta & Southern Gas Co., Ltd., be given permission to export up to 400-million cu. ft. of gas daily over the next 17 years, and that Westcoast Transmission Co., Ltd., be allowed to export up to 165-million cf/d over the next 20 years.

However, the gas export deals must still be approved by Canadian federal authorities and the U.S. Federal Power Commission.

At the same time, a brand new proposal for transporting Canadian gas across the border to serve Michigan and Wisconsin communities has popped up.

Midwestern Gas Transmission Co., a subsidiary of Tennessee Gas Transmission Co., wants to build a 500-mi., 24-in. line from an extension of the Trans-Canada system just south of Winnipeg, to the central-Wisconsin community of Marshfield. Midwestern would take about 204-million cf/d from Trans-Canada for its project.

At Marshfield, Midwestern would deliver much of the Canadian gas to Michigan Wisconsin Pipe Line Co., which plans an extension of its present system from Green Bay to Marshfield.

About 50-million cf/d of the Canadian gas would be sold by Midwestern along the right of way of its proposed line. The rest of the gas would be sold to communities in north and central Wisconsin and the Upper Peninsula of Michigan.

The plan is scheduled to come before regulatory bodies in 30 days. The companies involved "hope" to have the system in service for the 1960 heating season.

Midwestern's earlier plans to move Canadian gas into other parts of the U.S. Midwest are still before U.S. and Canadian regulatory bodies (PW—May17'57,p16).

Another Proposed Outlet for Alberta Gas

Pipelines are in the News

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What's New / IN TRANSPORTATION AND STORAGE

Texas Eastern Transmission Corp. is planning to excavate what it calls the largest-capacity underground storage cavity for petroleum products, a 500,000-bbl. cavern.

The company is already drilling at the site of the cavern, at Mont Belvieu, Tex., about 25 mi. east of Houston. After drilling has been completed, water washing of the underground salt dome at the site will be begun. Completion is scheduled for late summer, when work on a "twin" cavern will begin.

At Mt. Belvieu, Texas Eastern will store propane and butane to be shipped later in its Little Inch system.

•

Colorado Interstate Gas Co. has ordered pipe for its proposed 175-mi., 30-in. line from Green River, Wyo. to Thistle, Utah.

Colorado has ordered the pipe from United States Steel Corp. despite the fact that the Federal Power Commission has not yet held hearings on the application for the line, an important segment of the $150-million "Utah Project," which would move gas from the El Paso Natural Gas Co. system in Wyoming to the California border. El Paso would build a 30-in. line from Thistle to the California border, just southwest of Las Vegas, Nev.

•

The National Petroleum Council will study the current petroleum storage facilities in the United States.

Purpose of the study is to determine the number of storage facilities with 25,000 bbl. or more of capacity. A special committee is being formed to handle the study. It will submit a report giving a breakdown of crude and product storage by states and counties.

The study is being made in response to a request by the Dept. of the Interior.

•

Intercity movement of oil by truck was 4% higher last year than in 1957, according to the latest figures of the American Trucking Assn.'s research department.

The figures show that 164 carriers were involved in such oil transportation last year, carrying 81,698,284 tons, as compared with 78,584,819 tons the year before.

•

Interprovincial Pipe Line Co. intends to extend its recent tariff reductions at Canadian terminals to its Michigan delivery points.

Interprovincial last week announced cuts on crude shipments to both Sarnia and Toronto (PW—Mar.27'59, p10). The company now plans to file new tariff rates before the Interstate Commerce Commission, which would result in "proportionate cuts" at Michigan delivery points.

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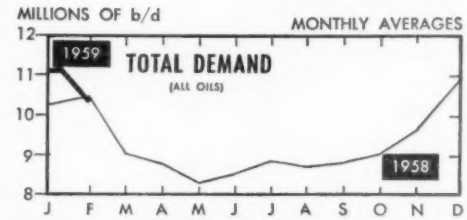
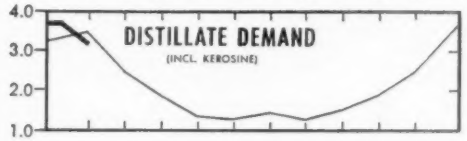
PETROLEUM WEEK'S

Fingertip Figures



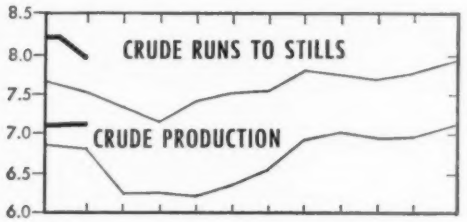
TOTAL DEMAND

Latest 4-week average	10.104
Year ago	9.367



DISTILLATE DEMAND

Latest 4-week average	2.655
Year ago	2.558

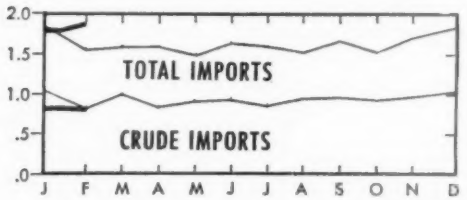


RUNS TO STILLS

Latest week	8.007
Previous week	8.082
Year ago	7.038

CRUDE PRODUCTION

Latest week	7.193
Previous week	7.203
Year ago	6.264

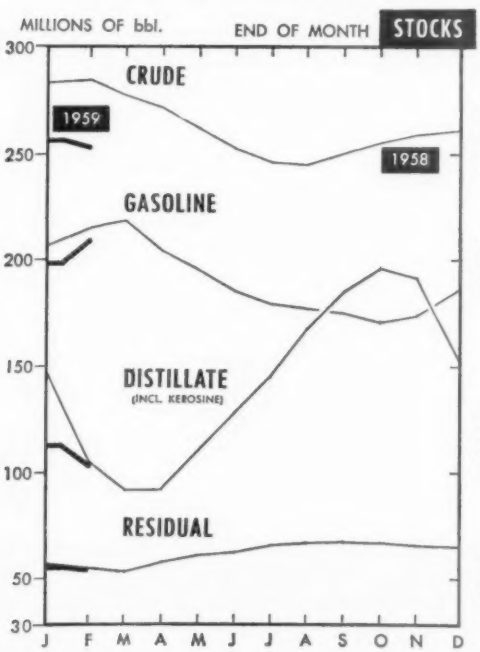


TOTAL IMPORTS

Latest week	1.785
Previous week	1.932
Year ago	1.405

CRUDE IMPORTS

Latest week	.726
Previous week	1.046
Year ago	1.003



CRUDE STOCKS

Week-ended 3-21	254.7
Previous week	255.7
Year ago	284.4

GASOLINE

Latest week	213.0
Previous week	212.1
Year ago	216.6

DISTILLATES

Latest week	94.6
Previous week	95.5
Year ago	92.3

RESIDUAL

Latest week	55.9
Previous week	55.1
Year ago	55.2

The new mandatory control over crude imports is beginning to show up in the statistics. Crude imports last week, averaging 726,000 b/d, were at the lowest level since last September.

Starting next week, product import figures also will begin to show the impact of tight restrictions. Total product volume imported so far this year has averaged about 1.9-million b/d.

That level will be cut sharply under the new regulations that became effective this week (page 10).

Imports of residual fuel have been running at about 800,000 b/d for the past three months, a figure that will be reduced by more than 50%.

* * *

The industry, concerned a few months ago over a possible shortage of middle distillates, now can start worrying over a possible oversupply.

Stocks of the intermediates last week topped the year-ago level. The inventories of middle distillates had been below the year previous level since early 1958.

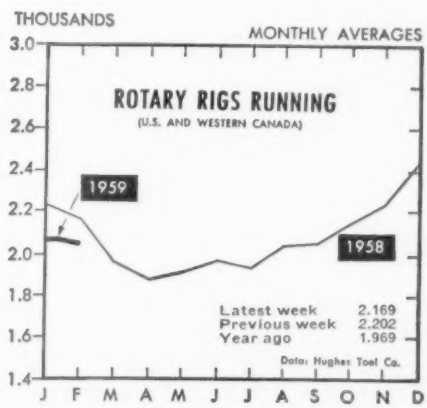
Gasoline stocks also are moving into a surplus position as refiners continue to maintain total runs at 8-million b/d—the rate of the past five weeks.

Motor fuel stocks, now at 213-million bbl., are just 3-million bbl. below a year ago—a time when stocks were high.

At the start of 1959 gasoline inventories were nearly 12-million bbl. under the like 1958 period.

The full impact of reduced imports, which will be noticed in April, may have the effect of bringing about some reduction in runs.

But industry observers predict that the refinery-run import plan will encourage a high level of runs.



The Market Trend

AT-A-GLANCE PETROLEUM WEEK Copyright

East Coast Chafes Under Residual Curbs

Is the past a good basis for predicting the future? The writers of the government's allocation order on residual fuel—now that the complaints are heating up—may not be quite so sure.

The trouble with using 1957, or any year, as a "base" year, is that there is such a thing as novelty. Times change, accounts change, new supply areas spring up, old friends sometimes fall out. Instead of being a good norm, a base year then becomes a Procrustean bed.

Such are the problems of a regulation-minded government vis-a-vis an industry that has never appreciated too much supervision. What to do, for example, with a major refiner who didn't import much in 1957, but who now is a substantial seller? What about the Caribbean refiner who has no history in 1957, but who for months has been trying to sell 35,000 b/d of residual output expected by this fall?

As the East Coast fuel oil market sees it, even the best possible regulation is bound to be a blunt instrument. How about the New York terminal operator who left his supplier of 1957 vintage and is building a terminal to handle oil of a Johnny-Come-Lately? Does he go back, cap in hand, to the 1957 seller?

The import allocations of residual will have a direct bearing on a big segment of East Coast marketing. Every major is in some way concerned. Some 30-odd of the biggest independents operating from Boston to Miami have much at stake.

Residual dealers by and large have shown more initiative than most marketers in recent years. They have searched for the cheapest oil they could find, as far afield as the Mid-Continent, the West Coast, the Caribbean, Europe, and the Persian Gulf.

And they have what amounts to a pathological fear of being hemmed in by regulations. "If the government takes away the business I have built up," one independent said, "will it then buy my idle trucks and storage?"

The wryest question of all: "Tell me—what district of Texas is Boston now located in?"

Tank Wagon Cuts In Canada:

Imperial Oil Ltd. reduced its tank wagon prices along with the cuts of 14¢ to 17¢ it made in Western Canadian crudes last week. Gasoline prices were off 0.5¢ to 0.7¢ a gal. in Newfoundland, the Maritime provinces, Quebec, and the Ottawa valley of Ontario.

Reductions of 0.5¢ a gal. in gasoline also were made in regular and "utility" grades in the Prairie Provinces and British Columbia.

Italy Exports:

Notice the latest export authorizations from Italy. Prominent mostly by their absence are gasoline and diesel oil exports to the U. S. It wasn't too long ago that these products moved here with clock-like regularity.

Gulf Coast

Gulf coast gasoline prices, by indirection, are getting stronger. Last week, a very q.t. sale was done at 0.75¢ discount. This was followed by another at 0.5¢ "off." Three sellers now won't go lower than 0.25¢.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of March 30

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 11.75-12.75
- Gasoline, 92 oct reg 10.5-11.5
- Kerosine 10.375
- Heating oil, No. 2 ..... 9.875
- Gas oil, 48-52 d.i. 10.125
- Fuel oil, bunker "C" $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130 16
- Gasoline, 93 oct research prem 10.75
- Gasoline, 87 oct research reg 9.875
- Gasoline, 79 oct research 9.125
- Gasoline, 70-72 oct motor method 9
- Kerosine 10.625
- Heating oil, No. 2 ..... 9.875
- Gas oil, 48-52, d.i. 10.125
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- Kerosine 11.5
- Heating oil, No. 2 11
- Fuel oil, No. 6 ..... $2.37-2.45

Okla-Group 3, northern shpt., bulk
- Gasoline, 89 oct reg 12-12.5
- **Kerosine ..... 10.75-11↓**
- **Heating oil, No. 2 ..... 9.5-9.75↓**
- Fuel oil, No. 6 ..... $1.90-2.00

Chicago, bulk
- Gasoline, 91 oct reg 12
- Heating oil, No. 2 ..... 10.25-11.85
- Fuel oil, No. 6 high sulfur 7.65-7.75

Los Angeles, rack
- Gasoline, 88 oct reg 12.65
- Diesel fuel, PS 200 ..... 8.5-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- **Propane, Oklahoma (Group 3) ..... 4.5*↓**

Pennsylvania Lubes
- Bright stock, 25 p.t. 22
- 200 vis. neutral, 25 p.t. 21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v.i. 23-24
- Neutral, solvent, 200-210 vis. 19.5-20.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 24
- Neutral, solvent, 200 vis. 20.5

**Effective March 24*

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 17.25
- Gasoline, 79 oct research 9.75
- Kerosine 10.75
- Gas oil, 48 d.i. minimum 10.5

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... $2.77-2.97
- North Dakota, 36.0-36.9 ..... 2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N. M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N. M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 4.05
- California, Signal Hill, 21.0-21.9 ..... 2.40-2.50
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- **Acheson-Stony Plain (Alta.) ..... $2.47↓**
- **Leduc-Woodbend (Alta.) ..... 2.53↓**
- **Redwater (Alta.) ..... 2.42↓**
- **Daly (Man.) ..... 2.21↓**
- **Smiley (Sask.) ..... 2.18↓**

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido $3.51
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.25
- Oficina, 35.0-35.9, Puerto la Cruz 2.88-2.90
- Tia Juana, Medium, 26.0-26.9, Amuay 2.40
- Bachaquero, flat, Las Piedras 1.78-1.93
- Tarra, 38.0-38.9, San Lorenzo 2.93
- Lagunillas Heavy, flat, Cardon 2.10

↓Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.89-1.90
- Safaniya, 27.0-27.9, Ras Tanura 1.50
- Iran, 34.0-34.9, Bandar Mashur 1.86-2.04
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.67
- Qatar, 41.0-41.9, Umm Said 2.05
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.38

Middle East, Eastern Mediterranean
- Arabian, 35.0-35.9, Sidon $2.29
- Iraqi, 36.0-36.9, Tripoli, Banias 2.31

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, flat $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean (USMC—27½%) $2.07↓**
- **U.S. Gulf-New York, dirty (USMC—22½%) $2.21↑**
- **NWI-USNH, dirty ..... (USMC—76½%) $ .89↓**
- NWI-UK/Cont., dirty ..... (Scale—55%) 14/8*
- Persian Gulf-UK/Cont., dirty ..... (Scale—65%) 23/3*
- Persian Gulf-USNH, dirty ..... (USMC—72½%) $3.49

**Sterling.*

DEPT/Marketing

The Texas Company

TEXACO Inc.

Another Brand Name Gets Prestige

The stockholders of The Texas Co. later this month will consider changing something that has been the same for 57 years—the company's name.

At the annual meeting of the stockholders, on Apr. 22, the board of directors will urge the stockholders to accept a name that they themselves approved last month—Texaco Inc.

The company had been leading up to a change of name long before the directors finally decided on the move.

Several of the company's foreign subsidiaries have already put "Texaco" in a prominent position in their own names. For example, there is Texaco (Brazil), Inc.; Texaco (Caribbean), Inc.; Texaco (Panama), Inc.; and more than a half dozen others.

Recently, Texaco announced the change of name of its Canadian subsidiary from McColl-Frontenac Oil Co., Ltd., to Texaco Canada, Ltd.

The reason for the change is obvious: The Texas Co. wants to capitalize on the wide acceptance of the Texaco trade mark.

Moreover, the company will be able to rid itself of the humiliating experience of not being recognized as the producer of its own products. "The name 'The Texas Co.' draws a blank in the eyes of the public," says one Texaco representative.

By changing its name, The Texas Co. steps into line with other oil companies that have modeled their names after their trade marks.

By integrating symbols, names, and brand marks so that they all conjure up the same company image, oil companies are able to focus the mind of the public on one easily remembered word.

For example, Socony-Mobil Oil Co. replaced "Vacuum" with the promotionally more significant "Mobil," the mark of identification for the company's gasoline and oil products.

Earlier, Esso Standard Oil Co. gave its brand name a position of prominence in a corporate title that had once offered no suggestion of brand—Standard Oil Co. of New Jersey.

Many oil companies are in a position to follow Texaco by bringing themselves into closer identification with the products they market.

Continental Oil Co. and Union Oil Co.—although neither is now considering a change—could logically call themselves Conoco Inc. and Unoco Inc. after the brand names of their respective products.

The names of several other companies offer no clue to the brand of gasoline they market. Kerr-McGee Oil Industries (Deep Rock), Cities Service Oil Co. (Milemaster), and Standard Oil Co. (Ky.) (Crown) are just a few examples.

A complete reversal of the trend toward co-ordination of brand and corporate names is found in Tidewater Oil Co. Prior to 1956, the company called itself Tide Water Associated Oil Co. and marketed Tydol Flying A gasoline.

But now the company sells only "Flying A" gasoline—and has completely dropped the word "Associated" on which the "A" is based.

Despite all the advantages in the new name, Texaco will incur a considerable expense to effect the change.

When Socony Mobil adopted its new name in 1956, $300,000 worth of forms bearing the old title had to be replaced, in addition to $25,000 worth of envelopes. Furthermore, Socony had to correct the corporate name on credit cards and battery guarantees, on patents and other legal documents, and on the listings in thousands of phone directories.

Although most of the old forms and stationery were used up in the normal course of business, Socony was faced with the gigantic task of notifying shareholders, credit-card holders, and suppliers of the change of name.

'Gas' Pumps in a Slump

The sharp decline in the sales of gasoline pumps last year indicates that the recent surge in service station building has abated somewhat.

Sales of computer pumps last year dropped to their lowest level since World War II, according to the Gasoline Pump Manufacturers Assn. Only 70,551 pumps were sold, compared to 105,218 in 1957—a drop of 34%.

The latest reports of pump sales indicate that station expansion plans this year are being held back to the low levels of 1958. But whether or not the curve will turn up again will not be clearly defined until later this month.

April is normally the highest month for sales of gasoline pumps. It is the month that indicates the oil company marketing executives' expansion outlook for the important gasoline-consumption months of the spring and summer.

After the peak of April sales, the gasoline pump industry normally falls into a sharp decline, losing almost 50% of its January-April gain. In October, however, a revival in gasoline station construction boosts pump sales again—to a peak that is sometimes higher than the April summit.

The erratic seasonal fluctuation in gasoline pump sales is one of the most troublesome factors in the manufacture of the pumps for the gasoline industry.

Because of the great variety of pumps that must be kept in stock, and the continuous analysis of new materials and their chemical properties, the pump industry has a high level of fixed costs. Furthermore, the yearly hiring of marginal labor to meet the seasonal increases in demand disturbs production efficiency and causes much waste.

One suggested remedy to this problem is the offering of seasonal discounts to oil companies that are will-

ing to order their pumps during slack periods of the year.

Sales of gasoline pumps react quickly to variations in the demand for gasoline.

After 1952, in the heat of market expansion, pump sales rose like mercury in a thermometer. From 72,000 in 1952, pump sales rose to 115,000 in 1956.

In 1957, however, the cooling off in gasoline demand had an immediate effect on the sales of pumps, which dipped to 105,000, followed by a drop last year to 70,551.

Many pump manufacturers feel that 1958 would have suffered an even more precipitous decline had it not been for the introduction of multiple-blending of gasolines at the pump, and the growth of superpremium fuels. Both of these innovations created a "temporary stimulus" for new designs in pumps.

Because of last year's slump in sales, pump manufacturers calculate that there must be thousands of pumps in the nation's service stations that are in need of replacement.

Gasoline pumps are usually fully depreciated after 10 years. After 15 years, they are generally replaced.

Normal replacement, plus what pump makers consider the normal expansion of the market, cause a demand for approximately 100,000 pumps annually. So last year's low level of 70,000 sales, they say, indicates that some 20,000 to 30,000 pumps should be replaced.

The octane race contributes considerably to the wearing-out of gasoline pumps. Aromatic hydrocarbons, among the most important ingredients in today's high-octane fuels, cause rubber to swell. Moreover, the aromatics extract compounds from rubber that serve to protect hoses from extremely cold temperatures.

Gasoline pump manufacturers are working in many directions to give their products versatility, in order to boost pump sales.

One plan seeks to coordinate credit-card handling directly with gasoline dispensing. And pump producers are searching for ways to integrate the pump into the over-all service station operation.

Pump manufacturers note that credit-card sales account for 25% to 30% of all transactions handled at the pump island.

To expedite these sales, pump makers are seeking to develop models that will coordinate credit-card imprinting, accounting, bookkeeping, and the dispensing of gasoline in one operation.

What's New / IN MARKETING

Independent Philadelphia dealers who object to fair trade have formed an association to counter the efforts of major oil companies to regulate retail prices. Says a representative: "Prices should be set in the market place by open competition. Oil companies are trying to stop competition so their own stations will get top dollar."

•

Florida will become the 20th state to participate in the campaign of the National Fuel Oil Council, says the Florida Petroleum Marketers Assn. The Florida branch will be called Better Home Heat Council of Florida, and will be composed of 17 local associations of fuel oil jobbers and dealers, totaling about 400 members.

•

Champlin Oil and Refining Co. is pushing branded sales in the Midwest, and is withdrawing from the bulk sales market. Last year, Champlin's branded gasoline sales climbed 7.1% over 1958, and branded fuel oil sales were up 6.1%. Even branded lubricating oils and greases rose 3.3%, in contrast to the general decline of such sales in the industry.

•

Cities Service Oil Co. plans to open several prefabricated stations in the Northeast. Made by Bettlinger Corp., the new stations are said to offer flexibility of fronts and color combinations, plus ease of installation and maintenance.

•

A California physicist foresees the eventual end of the automobile's internal combustion engine. Dr. Park H. Miller, Jr., of General Dynamics Corp., predicts a glowing future for thermoelectric and thermionic generators that will directly convert fuel into energy. "A car employing a thermoelectric generator would have a four-wheel direct drive and would burn kerosine or any other fuel in place of high-octane gasoline," Miller says.

Kerr-McGee Opens Convertible Stations

Bright with porcelain-enamel, this new sales office was unveiled recently along Oklahoma highways by Kerr-McGee Oil Industries, Inc.

Engineered for swift gas, oil, and accessory sales, the station is not equipped for major maintenance. But Kermac can add wash and lube bays if necessary.

The station sales office is designed by Avoncraft. It is pre-assembled and shipped to the station site in complete "package" units in specially equipped trucks.

DEPT / Service & Equipment Companies

CHARLES E. WILLIAMS has been promoted to vice-president of Continental Tube Co., Houston, an affiliate of Crispin Co. He joined Continental Tube in 1957 as sales manager, a position he has held up to the present time. Continental Tube is a supplier of oil country tubular goods, drill pipe, line pipe, and casing, and is the exclusive U.S. agent of Comptoir F.B.I., export organization for 31 pipe mills in Belgium and France.

C. E. Williams

E. P. Additon

E. P. ADDITON has been appointed manager of contracts and sales promotion in the chemical plants division of Blaw-Knox Co., with offices at Pittsburgh. He was formerly district sales engineer for the chemical plants division, at Haddon Heights, N. J.

MALCOLM S. JONES has been named manager of the El Paso (Tex.) district of Allis-Chalmers Industries Group. He has been a sales representative in the Denver district since 1951 and, before that, was a specialist in the company's processing machinery department. Jones succeeds **John E. Despins**, who transfers to Allis-Chalmers International.

W. W. BYNUM and **GLENN CLARK** have incorporated a new well logging and core analysis company called Rig Time, Inc. The company's home office will be in Shreveport, La., and operational offices and analysis laboratory will be in Jackson, Miss. Bynum was formerly vice-president in charge of sales and advertising for Hycalog, Inc., Shreveport, and Clark was Hycalog's district manager in Jackson. Officers of the new company include: Bynum, president; Clark, vice-president; **C. D. Miller**, Lafayette, vice-president in charge of field operations; **Cecil E. Ramey**, Shreveport, secretary-treasurer; **William L. Yauger, Jr.**, Shreveport, manager of research and development; **Wesley C. Graham**, formerly of Lafayette, manager of the Jackson (Miss.) shop; **Ken Tatum**, Meridian, Miss., manager of the core analysis division; and **Miles Grissett**, Columbus, Ga., sales representative.

D. C. MURPHY CO., Des Moines, Iowa, is sales representative for all products and applications of B-I-F Industries, Inc., in the industrial and petro sales fields. Murphy's territory includes eastern Iowa, and sections of Illinois.

MID-CONTINENT SUPPLY CO. will distribute oil field products manufactured by Enardo Mfg. Co., Tulsa, in the United States and Canada.

J. Sowers

W. L. Brannon

WILLIAM L. BRANNON has been named export representative, and **JOHN SOWERS** representative for the Bakersfield-San Joaquin-northern California area, in the field service organization of Technical Oil Tool Corp. Brannon will soon complete his training with Totco in Los Angeles, and shortly after will depart for South America on an extended field trip. For the past four years, he has been in sales and service work with Hydril Co. Sowers was most recently associated with Hughes Tool Co.

LEO C. FARMER has been named treasurer, and **BYRON W. DICKIE** secretary, of National Geophysical Co., Dallas. Farmer was most recently the company's chief accountant, and Dickie was an administrative assistant.

B. B. TUNNELL becomes sales manager of the Shreveport (La.) sales office of Republic Supply Co. Tunnell, with Republic since 1955, was formerly store manager at the company's Arkansas City (Kan.) store.

B. B. Tunnell

R. E. Kimball

RICHARD E. KIMBALL is district sales manager at Graver Tank & Mfg. Co.'s new sales office in Seattle. His territory will cover Washington and Oregon. Kimball, with Graver since 1949, was most recently district sales manager for northern Indiana, with offices at the company's East Chicago (Ind.) headquarters.

JOHN B. WILSON has been elected to the newly created position of executive vice-president of Standard Pipeprotection, Inc., St. Louis. Wilson, formerly vice-president and treasurer, has been with the company since it was founded ten years ago to coat and wrap steel pipe used in underground installations. **Lee A. Whitney**, vice-president of Champlin Oil & Refining Co., Ft. Worth, has been elected a director of Standard Pipeprotection.

LOUIS A. VENINCASA is in charge of the new Baton Rouge sales office opened by Fritz W. Glitsch & Sons, Inc., manufacturer of fractionation trays and pressure vessels for petroleum refining. He was formerly located at the company's Dallas office.

PICTURED IS 200-MAN CAMP

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ELDER field trailers are built to give long, trouble-free service under the toughest off-the-road conditions. You do not pay for house trailer frills. Sold to you direct . . . no middlemen involved.

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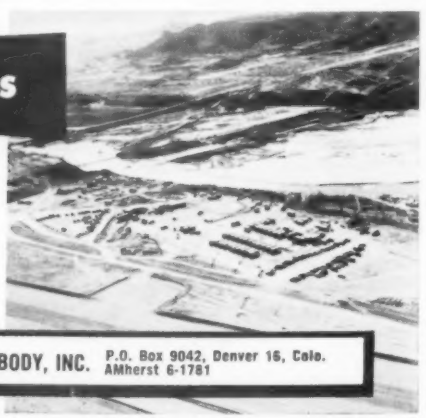

ALASKA: Specialized equipment for Alaskan operations—our complete Turnkey Operation available.

ELDER TRAILER AND BODY, INC. P.O. Box 9042, Denver 16, Colo. AMherst 6-1761

Tool pusher for independent drilling contractor photographed near Houston by W. D. Murdy.

One of a series of portraits of oil industry management and operating men.

What's in Petroleum Week for Tool Pushers?

A TOOL PUSHER, oil country language for on-site drilling superintendent, finds plenty in Petroleum Week. For Petroleum Week broadens the horizon of more than 45,000 men in the oil industry, at all levels and in all segments. It's the magazine where busy oil men keep informed, where they get up-to-the-minute reports on the news, technical developments and trends that affect their daily activities. Out of this information they acquire the industry perspective so vital to doing a good job.

A good, responsible tool pusher has to keep informed, and that's why he likes Petroleum Week—oil's most readable magazine. He is in charge of one or more drilling rigs. In effect, he is supervisor of drilling operations, on the site—and he takes more than a passing interest in important tools of his trade. Tool pushers are among the many thousand subscribers to PW who are actively and directly engaged in the drilling segment of the oil industry.

Whether you want to reach pushers or presidents, technical men or operating men, the pages of Petroleum Week can carry your advertising messages effectively, for all groups of buying influences are covered. That's why more and more companies are placing more and more advertising in this magazine in 1959.

PETROLEUM WEEK

Oil's Most Readable Magazine ABP All paid ABC Audited Circulation

A McGraw-Hill Publication • 330 West 42nd Street, New York 36, N.Y.

ADVERTISERS IN THIS ISSUE

Avondale Marine Ways, Inc.	4
Black, Sivalls & Bryson, Inc. Oilfield Equipment Div.	14
Cameron Iron Works, Inc.	8
Cooper-Bessemer Corp., The	12-13
Dallas Aero Service	43
Dowell	Cover 3
Eastman Chem. Prods. Inc.	8
Elder Trailer & Body, Inc.	72
Enjay Co. Inc.	5
Fenix & Scisson	35
First City National Bank of Houston	2
First Nat'l Bank in Dallas	Cover 2
Foxboro Co., The	40
Goodyear Tire & Rubber Co.	1
Hewitt-Robbins	64
Hughes Tool Co.	38-39
Humble Oil & Refining Co.	31
Ingalls Shipbuilding Corp.	63
Kellogg Co., M. W.	Cover 4
Lone Star Steel Co.	6-7
McKee-Raymond	61
Mission Mfg. Co.	28
National Tube Div. U.S. Steel Corp.	50
Parker Aircraft Co.	27
Perrault Equipment Co.	66
Polyken Prods. Div. Kendall Co.	49
Price Co., H. C.	23
Products Div. U.S. Steel Corp.	25
Republic Nat'l Bank of Dallas	22
Southwestern Industrial Electronics Co.	55
Sun Shipbuilding & Dry Dock Co.	56
Swartwout Co.	42
Universal Oil Prods. Co.	37
Warren Petroleum Corp.	35
Williams Bros.	65

Professional Services 75

Classified Advertising
F. J. Eberle, Business Mgr.

Employment Opportunities 75

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Hubbard 2-7160

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Mohawk 4-5800

Cleveland 15 J. E. MacArthur
1164 Illuminating Bldg.
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Superior 1-7000

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Mile High Center, 1740 Broadway
Alpine 5-2981

Houston 25 D. O. Hanson
724 Prudential Bldg.
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Huntley 2-5450

New York 36 Donald R. Thompson
500 Fifth Ave.
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DEPT/Personals

W. O. Clift

A. F. Matthews

WILLIAM O. CLIFT is president and chief executive officer, and **A. F. MacLEOD MATTHEWS** senior vice-president, of the new Sinclair & BP Explorations, Inc., New York, jointly owned by Sinclair Oil Corp. and British Petroleum Co. The new company will engage in crude exploration and production ventures primarily in Latin America. Clift has been general manager of Sinclair Somal Corp. since 1957, and Matthews was most recently manager of the lands division of BP Exploration Co., Ltd., in London. **H. R. Warman,** from British Petroleum, is Sinclair & BP's vice-president and chief geologist, and **Raymond Halsey,** formerly a geophysicist with Sinclair Oil & Gas Co., is the new company's chief geophysicist. **F. C. R. Martin,** a geologist from British Petroleum, will establish an office in South America for the new company.

M. W. CONN has been named assistant manager of Phillips Petroleum Co.'s new foreign sales and development department, in New York. **A. D. Fischbeck** is manager of patent licensing and market development for the new department. **R. J. Hull** is promoted to manager of rubber chemicals and plastic sales, and **R. E. Elliott** and **R. G. Askew** are assistant managers. **R. O. Nagel** is manager of the company's office in Sao Paulo, Brazil. **A. E. Buell** succeeds Conn as manager of the market development division of the research and development department, in Bartlesville, and **O. D. Edwards** replaces Fischbeck as manager of that division's patent and process licensing branch. Hull was most recently export manager in the company's rubber chemicals division. Elliott was Latin American sales manager in that division. Askew was export manager of the plastics sales division, and Nagel was lubrication engineer in the Denver division of the sales department.

HAROLD S. SKINNER has been named to the newly created post of assistant to the president and director of public relations of Continental Oil Co., at Houston. He was formerly general counsel for the company at its Houston office.

MERLE S. KEFFER, formerly manager of supply and transportation for Texas City Refining, Inc., Texas City, has announced the formation of Coastal Crude Oil Co., Houston, to market crude oil. Coastal offers its services to producers who do not have market outlets and to refiners in need of specialized crudes or other petroleum materials.

H. E. STOVER, formerly district landman at San Antonio for Argo Oil Corp., is now landman at the company's new district office in Jackson, Miss. **J. W. Carey** succeeds him at San Antonio. **Joe L. Terry,** formerly geologist at San Antonio, transfers to Jackson in the same capacity.

MARVIN L. McCULLOUGH, Rivercrest Oil Co., Wichita Falls, Tex., is president of the North Texas Oil & Gas Assn., for 1959-1960. This is his second term as president of the association. **Netum A. Steed,** Taubert & Steed Drilling Co., Wichita Falls, is first vice-president for 1959-1960, and **David A. Kimbell,** Alan Drilling Co., Wichita Falls, is second vice-president. **George W. Anderson, Jr.,** continues as executive vice-president.

HAROLD W. (Duke) HAIGHT, chairman of Carter Oil Co., Tulsa, and former president of Creole Petroleum Corp., has been elected a director of Esso Research & Engineering Co., New York. All three companies are affiliates of Standard Oil Co. (N. J.). Haight succeeds **Carl G. Herrington,** a vice-president and director of Carter, on the Esso Research board.

H. W. Haight

W. A. Strauss

WILLIS A. STRAUSS is the executive vice-president of Northern Natural Gas Co., Omaha, Neb. He will report to **John Merriam,** president, and under his direction will be responsible for operations of the company. Strauss was formerly administrative vice-president.

JAMES A. PLUMSTEAD, JR., has been named an engineering associate of Esso Research & Engineering Co. Esso Research gives this position to men "with outstanding technical abilities." Plumstead, who has been assigned to Esso Research's European offices in The Hague, Netherlands, joined the company in 1948 as a student engineer. **William W. Bray, Jr.,** has been named head of the petrochemicals section, and **Leonard Hollander** head of the equipment development section, of the design engineering division, at Linden, N. J. Bray, with Esso Research since 1951, returned from a nine-month assignment in England in

January. Hollander, with the company for eight years, has had overseas assignments in France, Italy, and Venezuela.

JOHN W. PRICKETT has been appointed manager of public relations of Natural Gas Pipeline Co. of America and its affiliates, with offices in Chicago. He succeeds **Robert H. Lewis,** who has resigned. **Jerry J. Donda,** formerly assistant editor of Between the Lines, the company's magazine, succeeds Prickett as editor. At the same time, **James F. Miller,** acting manager of employee relations since 1958, was appointed manager of that section.

J. W. Prickett

C. O. Peyton

CHARLES O. PEYTON has been named general manager of the petroleum specialties department of Esso Standard Oil Co., New York. He succeeds **Donald O. Swan,** who becomes a vice-president and general manager of the cargo sales department of Esso Export Corp., also an affiliate of Standard Oil Co. (N.J.). Peyton, formerly head of the technical division at Esso's Baton Rouge refinery, has been assistant general manager of Esso Standard's petroleum specialties department since last May.

W. H. HAINES, JR., became assistant district sales manager in San Francisco for Standard Oil Co. of California on Apr. 1. He has been assistant manager of the Spokane (Wash.) district since 1956.

L. W. (Bill) GOUDY has been appointed assistant exploration manager for Vickers Petroleum Co., Wichita, Kan. Goudy has been chief geologist for the company since June, 1956.

E. A. MURCHISON, JR., is the new division exploration manager of the eastern division of Humble Oil & Refining Co.'s exploration department, at New Orleans. The division was recently reorganized and expanded. **G. L. Tate,** formerly assistant division geologist in New Orleans, succeeds Murchison as division geologist there. **O. D. Brooks** is the new assistant explorations division manager in New Orleans. He was formerly assistant chief of the seismic section in Houston. **J. A. Heyl, Jr.,** is supervisor of the newly activated New Orleans lease records and rental unit. The unit's work was formerly done in Houston. Other promotions at New Orleans include: **W. W. Walker,** from senior scout to assistant division chief scout; **J. L. Hudgins,** from division exploration geologist in the East Texas division to assistant division geologist; **L. A. Markley, Sr.,** from seismic computer operator to assistant division geophysicist; and **T. D. Barrow,** from the exploration section in the California area to division exploration geologist.

T. M. McQUILLING, general manager, marine, American Oil Co., has become a member of the Tanker Committee of the American Merchant Marine Institute.

H. F. SHEA moves up from assistant director to director of Continental Oil Co.'s manufacturing accounting division. He succeeds the late **C. M. Rowell.** Shea will continue to be headquartered in Ponca City, Okla.

ROBERT D. SPRAGUE transfers from New Orleans to Tulsa as assistant chief geologist of Sinclair Oil & Gas Co. Sprague, with Sinclair since 1930, was division geologist for the company's offshore division at New Orleans.

IVAN A. MILLER has joined the staff of the protective coatings sales section of Monsanto Chemical Co.'s Lion Oil Division, El Dorado, Ark. He has been plant engineer at the Tuscaloosa (Ala.) refinery of H. L. Hunt Oil Co. since 1955.

SAMUEL T. COUCH is manager of the new marine sales department of General Petroleum Corp., with headquarters in San Francisco. The new department consolidates the marine bunker and marine lubricants departments. Other members of the marine sales department and their locations include: **THAD VREELAND,** assistant manager, Los Angeles; **W. D. Ellison,** area manager, Los Angeles; and **L. M. West,** marine sales assistant, San Francisco.

JACK C. MORGAN will become manager of the construction and maintenance division of Esso Standard Oil Co.'s marketing department, on April 15. He succeeds **W. J. Koenig,** who transfers to Standard Oil Co. (N. J.), Esso's parent, as manager of the engineering section of the marketing coordinating department.

EVERETT W. HUBBARD, JR., is the new assistant to the vice-president in charge of refining of Kerr-McGee Oil Industries, Inc., Oklahoma City. He was formerly senior mechanical engineer at Kerr-McGee's Cushing (Okla.) refinery.

JOHN N. BOYD has been elected assistant treasurer in charge of records and services for Gulf Oil Corp., Pittsburgh. He has been manager of the payrolls, benefits, and stock records section of the treasury department, and was most recently appointed secretary of the annuity committee and savings plan committee.

FRANK WESLEY TURNER is Enjay Co.'s technical sales representative for butyl rubber in the Akron (Ohio) district. Enjay is a marketer of petrochemicals, and a subsidiary of Standard Oil Co. (N.J.)

SEARCHLIGHT SECTION

(Classified Advertising)

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INFORMATION

BOX NUMBERS count one additional line in undisplayed ads.

NEW ADVERTISEMENTS accepted 10 days prior to issue date.

Petroleum Engineer

Petroleum Department of major New York financial institution has opening for a recent graduate petroleum engineer with some field work and experience in reservoir and evaluation engineering. Salary commensurate with experience. Please reply giving full particulars on education, experience, personal data, including recent picture, references and salary expected. All replies will be confidential.

P-1038 PETROLEUM WEEK
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To assist traffic manager. Age range 25 to 35. Five to ten years' experience in traffic work with special emphasis on railroad rates and ICC procedures. Degree preferred in traffic or transportation. Salary commensurate with experience.

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Oil Doesn't Need Jimmy Hoffa

ON THE LABOR FRONT, the industry is facing one of the most disturbing developments in recent times: The prospect that Jimmy Hoffa and his Teamsters may take over some of the existing oil unions.

We don't see how anyone is going to gain from this—except maybe Mr. Hoffa and his associates. And much could be lost, both by the industry in general and by oil union members in particular.

The exposure of graft and corruption in many labor unions—and on the Teamsters during the Dave Beck era—has disgusted many people, including oil workers. And Hoffa has many skeptics.

By contrast, not a single oil union has been touched by the labor scandals. They deserve a word of praise, for, because of their integrity, oil unions have been able to negotiate with management in an atmosphere of mutual respect—even though their views naturally clash on occasion.

The advent of Jimmy Hoffa could change that in a hurry—and change it for the worse. It is to be hoped that disgruntled independent union leaders who are having trouble negotiating contracts will not let their discontent drive them into the camp of the likes of Jimmy Hoffa.

Antidepletion Groups Are Growing

ANOTHER "LABOR" BATTLE is shaping up on the waterfront. This one has nothing to do with wages or working conditions. But if the labor groups involved win their fight, they would hit hard at the oil industry's pocketbook.

The particular battle is one of spite, aimed at percentage depletion. The Seafarers International Union and the National Maritime Union, with a combined membership of 115,000, are hopping mad over the practice of foreign registry of American-owned tankers.

So they are pressing their case on another front. Last week, the unions sent letters to members of two congressional committees, which branded U. S. owners of foreign-flag tankers as firms "shirking their fair share" of the tax load. They demanded a "reduction or elimination" of percentage depletion and "other special tax allowances."

The unions may have dubious ground for their attack. But the overriding consideration is that the unions represent another strong group moving to damn the percentage depletion provision.

The growing momentum from all of the attacking groups—each with its own ax to grind—could hit the industry a rough body blow.

Passes even the "white glove" inspection— Thanks to Dowell's new standard of cleanness

You may never have occasion to place "white glove" requirements to the cleanness of your process equipment, steam generators, tanks and piping. But, if you do need this high degree of cleanness, Dowell can now offer it — as an additional service — in the chemical cleaning of *your* plant equipment.

Dowell developed these new standards in cleaning the piping networks of the missile launching facilities at Cape Canaveral. Combining the research and engineering facilities of the entire company, Dowell perfected new techniques, materials and equipment to meet the necessary rigid specifications.

This new service is now adaptable for use in all types of American industry. For example, Dowell recently performed an intricate cleaning job on a 3½-mile-long buried pipeline. The customer wanted to convert the six-inch line from hydrocarbon gas to carry oxygen. For this pure product the line had to be immaculate—free of all foreign materials. The plant was faced with the alternate of laying new pipe—a six week job at a cost of $150,000.

Using their new standard of cleanness, Dowell cleaned the line of hydrocarbon residues, carbon black, grease, mill scale, and rust. Meanwhile, plant crews made mechanical alterations to the line at a cost of about $25,000. Dowell's charge was $20,000; the job was done in 3½ days.

The job was satisfactory in every way. Inspection showed the line was free of all foreign matter. The customer credited Dowell with saving them about $100,000. Also the plant made additional profits because the line was put back into use so quickly.

Ask your Dowell representative about these new standards of cleanness and their possible application to your problems. This exclusive Dowell service may save you important money. Dowell, the pioneer of chemical cleaning, has 165 offices to serve every major industrial center. Dowell, Tulsa 1, Oklahoma.

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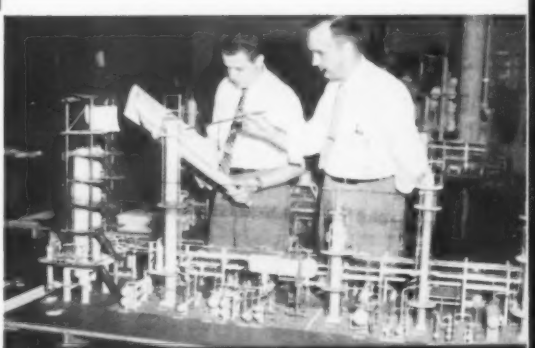
...and cordially invites you to see two of its advanced engineering and design techniques in actual operation—both at the New York Coliseum, June 1-5, and at M. W. Kellogg's New York headquarters, May 25–June 5...

WHEN IN NEW YORK for the Congress, refiners interested in advanced engineering and design techniques should plan to see the practical demonstrations of Kellogg's computer-programming and model-building developments. Both can be seen at Kellogg's exhibit at the Coliseum, Booth 510 (second floor, center aisle) or at Kellogg's New York offices.

At the Coliseum, a Burroughs 205 Computer will run three Kellogg programs: (1) Designing a heat exchanger; (2) Computing material balances around a complete gas recovery system; and (3) Calculating streams for the cascade reactor of a Kellogg sulfuric acid alkylation unit.

Also at Booth 510, visitors may watch designers building scale models, see how model photographs are used in place of drawings, and become acquainted with the many ways in which models improve and speed designs.

Refiners wishing to pursue these two techniques further, or to learn about other Kellogg engineering practices, are invited to visit the company's New York headquarters, May 25 to June 5. Arrangements can be made at Kellogg's exhibit or by telephoning Mr. A. L. Dowling, Public Relations, at OX 7-5200.



See scale models being built

See electronic computers at work

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